B^0

$I(J^P) = \frac{1}{2}(0^-)$

Quantum numbers not measured. Values shown are quark-model predictions.

See also the $B^{\pm}/B^0$ ADMIXTURE and $B^{\pm}/B^0/B^0_s/b$-baryon ADMIXTURE sections.

See the Note "Production and Decay of b-flavored Hadrons" at the beginning of the $B^{\pm}$ Particle Listings and the Note on "B^0-$\overline{B}^0$ Mixing" near the end of the B^0 Particle Listings.

B^0 MASS

The fit uses m_{B^+}, $(m_{B^0} - m_{B^+})$, and m_{B^0} to determine m_{B^+}, m_{B^0}, and the mass difference.

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
5279.66±0.12 OUR FIT					
5279.63±0.20 OUR AVERAGE					
5279.74±0.30±0.10		[1] AAIJ	19U	LHCB	pp at 7, 8, 13 TeV
5279.6 ±0.2 ±1.0		[2] AAD	13U	ATLS	pp at 7 TeV
5279.58±0.15±0.28		[3] AAIJ	12E	LHCB	pp at 7 TeV
5279.63±0.53±0.33		[4] ACOSTA	06	CDF	$p\overline{p}$ at 1.96 TeV
5279.1 ±0.7 ±0.3	135	[5] CSORNA	00	CLE2	$e^+e^- \to \Upsilon(4S)$
5281.3 ±2.2 ±1.4	51	ABE	96B	CDF	$p\overline{p}$ at 1.8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
5279.2 ±0.54±2.0	340	ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$
5278.0 ±0.4 ±2.0		BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
5279.6 ±0.7 ±2.0	40	[6] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$
5278.2 ±1.0 ±3.0	40	ALBRECHT	87C	ARG	$e^+e^- \to \Upsilon(4S)$
5279.5 ±1.6 ±3.0	7	[7] ALBRECHT	87D	ARG	$e^+e^- \to \Upsilon(4S)$
5280.6 ±0.8 ±2.0		BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] Uses $B^0 \to J/\psi p\overline{p}$ decays.

[2] Measured with $B^0_d \to J/\psi(\mu^+\mu^-)\ K^0_S(\pi^+\pi^-)$ decays.

[3] Uses $B^0 \to J/\psi K^0$ fully reconstructed decays.

[4] Uses exclusively reconstructed final states containing a $J/\psi \to \mu^+\mu^-$ decays.

[5] CSORNA 00 uses fully reconstructed 135 $B^0 \to J/\psi^{(\prime)} K^0_S$ events and invariant masses without beam constraint.

[6] ALBRECHT 90J assumes 10580 for $\Upsilon(4S)$ mass. Supersedes ALBRECHT 87C and ALBRECHT 87D.

[7] Found using fully reconstructed decays with J/ψ. ALBRECHT 87D assume $m_{\Upsilon(4S)} =$ 10577 MeV.

$m_{B^0} - m_{B^+}$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
0.32±0.05 OUR FIT				
0.33±0.05 OUR AVERAGE				
$0.57\pm0.49\pm0.10$	[1] SIRUNYAN	18DF	CMS	pp at 8 TeV
$0.20\pm0.17\pm0.11$	[1] AAIJ	12E	LHCB	pp at 7 TeV
$0.33\pm0.05\pm0.03$	[2] AUBERT	08AF	BABR	$e^+e^- \to \Upsilon(4S)$
$0.53\pm0.67\pm0.14$	[1] ACOSTA	06	CDF	$p\overline{p}$ at 1.96 TeV
$0.41\pm0.25\pm0.19$	ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$
$-0.4\ \pm0.6\ \pm0.5$	BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
$-0.9\ \pm1.2\ \pm0.5$	ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$
$2.0\ \pm1.1\ \pm0.3$	[3] BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] Uses exclusively reconstructed final states containing a $J/\psi \to \mu^+\mu^-$ decay.

[2] Uses the B-momentum distributions in the e^+e^- rest frame.

[3] BEBEK 87 actually measure the difference between half of E_{cm} and the $B^\pm$ or B^0 mass, so the $m_{B^0} - m_{B^\pm}$ is more accurate. Assume $m_{\Upsilon(4S)} = 10580$ MeV.

$m_{B^0_H} - m_{B^0_L}$

See the B^0-$\overline{B}^0$ MIXING PARAMETERS section near the end of these B^0 Listings.

B^0 MEAN LIFE

See $B^\pm/B^0/B^0_s/b$-baryon ADMIXTURE section for data on B-hadron mean life averaged over species of bottom particles.

"OUR EVALUATION" is an average using rescaled values of the data listed below. The average and rescaling were performed by the Heavy Flavor Averaging Group (HFLAV) and are described at https://hflav.web.cern.ch/. The averaging/rescaling procedure takes into account correlations between the measurements and asymmetric lifetime errors.

VALUE (10^{-12} s)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.519±0.004 OUR EVALUATION					
$1.515\pm0.005\pm0.006$		[1] SIRUNYAN	18BY	CMS	pp at 8 TeV
$1.534\pm0.019\pm0.021$		[2] ABAZOV	15A	D0	$p\overline{p}$ at 1.96 TeV
$1.499\pm0.013\pm0.005$		[3] AAIJ	14E	LHCB	pp at 7 TeV
$1.524\pm0.006\pm0.004$		[4] AAIJ	14E	LHCB	pp at 7 TeV
$1.524\pm0.011\pm0.004$		[5] AAIJ	14R	LHCB	pp at 7 TeV
$1.509\pm0.012\pm0.018$		[6] AAD	13U	ATLS	pp at 7 TeV
$1.508\pm0.025\pm0.043$		[3] ABAZOV	12U	D0	$p\overline{p}$ at 1.96 TeV
$1.507\pm0.010\pm0.008$		[7] AALTONEN	11	CDF	$p\overline{p}$ at 1.96 TeV
$1.414\pm0.018\pm0.034$		[8] ABAZOV	09E	D0	$p\overline{p}$ at 1.96 TeV
$1.504\pm0.013^{+0.018}_{-0.013}$		[9] AUBERT	06G	BABR	$e^+e^- \to \Upsilon(4S)$
$1.534\pm0.008\pm0.010$		[10] ABE	05B	BELL	$e^+e^- \to \Upsilon(4S)$
$1.531\pm0.021\pm0.031$		[11] ABDALLAH	04E	DLPH	$e^+e^- \to Z$
$1.523^{+0.024}_{-0.023}\pm0.022$		[12] AUBERT	03C	BABR	$e^+e^- \to \Upsilon(4S)$

$1.533 \pm 0.034 \pm 0.038$		[13] AUBERT	03H	BABR	$e^+ e^- \to \Upsilon(4S)$
$1.497 \pm 0.073 \pm 0.032$		[14] ACOSTA	02C	CDF	$p\overline{p}$ at 1.8 TeV
$1.529 \pm 0.012 \pm 0.029$		[15] AUBERT	02H	BABR	$e^+ e^- \to \Upsilon(4S)$
$1.546 \pm 0.032 \pm 0.022$		[16] AUBERT	01F	BABR	$e^+ e^- \to \Upsilon(4S)$
$1.541 \pm 0.028 \pm 0.023$		[15] ABBIENDI,G	00B	OPAL	$e^+ e^- \to Z$
$1.518 \pm 0.053 \pm 0.034$		[17] BARATE	00R	ALEP	$e^+ e^- \to Z$
$1.523 \pm 0.057 \pm 0.053$		[18] ABBIENDI	99J	OPAL	$e^+ e^- \to Z$
$1.474 \pm 0.039 {}^{+0.052}_{-0.051}$		[17] ABE	98Q	CDF	$p\overline{p}$ at 1.8 TeV
$1.52 \pm 0.06 \pm 0.04$		[18] ACCIARRI	98S	L3	$e^+ e^- \to Z$
$1.64 \pm 0.08 \pm 0.08$		[18] ABE	97J	SLD	$e^+ e^- \to Z$
$1.532 \pm 0.041 \pm 0.040$		[19] ABREU	97F	DLPH	$e^+ e^- \to Z$
$1.25 {}^{+0.15}_{-0.13} \pm 0.05$	121	[14] BUSKULIC	96J	ALEP	$e^+ e^- \to Z$
$1.49 {}^{+0.17}_{-0.15} {}^{+0.08}_{-0.06}$		[20] BUSKULIC	96J	ALEP	$e^+ e^- \to Z$
$1.61 {}^{+0.14}_{-0.13} \pm 0.08$		[17,21] ABREU	95Q	DLPH	$e^+ e^- \to Z$
$1.63 \pm 0.14 \pm 0.13$		[22] ADAM	95	DLPH	$e^+ e^- \to Z$
$1.53 \pm 0.12 \pm 0.08$		[17,23] AKERS	95T	OPAL	$e^+ e^- \to Z$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$1.501 {}^{+0.078}_{-0.074} \pm 0.050$		[3] ABAZOV	07S	D0	Repl. by ABAZOV 12U
$1.524 \pm 0.030 \pm 0.016$		[3] ABULENCIA	07A	CDF	Repl. by AALTONEN 11
$1.473 {}^{+0.052}_{-0.050} \pm 0.023$		[8] ABAZOV	05B	D0	Repl. by ABAZOV 05W
$1.40 {}^{+0.11}_{-0.10} \pm 0.03$		[3] ABAZOV	05C	D0	Repl. by ABAZOV 07S
$1.530 \pm 0.043 \pm 0.023$		[8] ABAZOV	05W	D0	Repl. by ABAZOV 09E
$1.54 \pm 0.05 \pm 0.02$		[24] ACOSTA	05	CDF	Repl. by AALTONEN 11
$1.554 \pm 0.030 \pm 0.019$		[16] ABE	02H	BELL	Repl. by ABE 05B
$1.58 \pm 0.09 \pm 0.02$		[14] ABE	98B	CDF	Repl. by ACOSTA 02C
$1.54 \pm 0.08 \pm 0.06$		[17] ABE	96C	CDF	Repl. by ABE 98Q
$1.55 \pm 0.06 \pm 0.03$		[25] BUSKULIC	96J	ALEP	$e^+ e^- \to Z$
$1.61 \pm 0.07 \pm 0.04$		[17] BUSKULIC	96J	ALEP	Repl. by BARATE 00R
1.62 ± 0.12		[26] ADAM	95	DLPH	$e^+ e^- \to Z$
$1.57 \pm 0.18 \pm 0.08$	121	[14] ABE	94D	CDF	Repl. by ABE 98B
$1.17 {}^{+0.29}_{-0.23} \pm 0.16$	96	[17] ABREU	93D	DLPH	Sup. by ABREU 95Q
$1.55 \pm 0.25 \pm 0.18$	76	[22] ABREU	93G	DLPH	Sup. by ADAM 95
$1.51 {}^{+0.24}_{-0.23} {}^{+0.12}_{-0.14}$	78	[17] ACTON	93C	OPAL	Sup. by AKERS 95T
$1.52 {}^{+0.20}_{-0.18} {}^{+0.07}_{-0.13}$	77	[17] BUSKULIC	93D	ALEP	Sup. by BUSKULIC 96J
$1.20 {}^{+0.52}_{-0.36} {}^{+0.16}_{-0.14}$	15	[27] WAGNER	90	MRK2	$E^{ee}_{\rm cm} = 29$ GeV
$0.82 {}^{+0.57}_{-0.37} \pm 0.27$		[28] AVERILL	89	HRS	$E^{ee}_{\rm cm} = 29$ GeV

[1] Measured using $B^0 \to J/\psi K^*(892)^0$ and $B^0 \to J/\psi K^0_S$ decays.

[2] Measured using $B^0 \to D^- \mu^+ \nu X$ decays.

[3] Measured mean life using $B^0 \to J/\psi K^0_S$ decays.

[4] Measured using $B^0 \to J/\psi K^{*0}$ decays.

[5] Measured using $B^0 \to K^+ \pi^-$ decays.

[6] Measured with $B^0_d \to J/\psi(\mu^+\mu^-)\ K^0_S(\pi^+\pi^-)$ decays.

[7] Measured mean life using fully reconstructed decays ($J/\psi K^{(*)}$).

[8] Measured mean life using $B^0 \to J/\psi K^{*0}$ decays.

[9] Measured using a simultaneous fit of the B^0 lifetime and $\overline{B}^0 B^0$ oscillation frequency Δm_d in the partially reconstructed $B^0 \to D^{*-}\ell\nu$ decays.

[10] Measurement performed using a combined fit of *CP*-violation, mixing and lifetimes.

[11] Measurement performed using an inclusive reconstruction and B flavor identification technique.

[12] AUBERT 03C uses a sample of approximately 14,000 exclusively reconstructed $B^0 \to D^*(2010)^-\ell\nu$ and simultaneously measures the lifetime and oscillation frequency.

[13] Measurement performed with decays $B^0 \to D^{*-}\pi^+$ and $B^0 \to D^{*-}\rho^+$ using a partial reconstruction technique.

[14] Measured mean life using fully reconstructed decays.

[15] Data analyzed using partially reconstructed $\overline{B}^0 \to D^{*+}\ell^-\overline{\nu}$ decays.

[16] Events are selected in which one B meson is fully reconstructed while the second B meson is reconstructed inclusively.

[17] Data analyzed using $D\,/\,D^*\ell$X event vertices.

[18] Data analyzed using charge of secondary vertex.

[19] Data analyzed using inclusive $D/D^*\ell X$.

[20] Measured mean life using partially reconstructed $D^{*-}\pi^+$X vertices.

[21] ABREU 95Q assumes B($B^0 \to D^{**-}\ell^+\nu_\ell$) = 3.2 ± 1.7%.

[22] Data analyzed using vertex-charge technique to tag B charge.

[23] AKERS 95T assumes B($B^0 \to D_s{}^{(*)} D^{0\,(*)}$) = 5.0 ± 0.9% to find B^+/B^0 yield.

[24] Measured using the time-dependent angular analysis of $B^0_d \to J/\psi K^{*0}$ decays.

[25] Combined result of $D/D^*\ell$x analysis, fully reconstructed B analysis, and partially reconstructed $D^{*-}\pi^+$X analysis.

[26] Combined ABREU 95Q and ADAM 95 result.

[27] WAGNER 90 tagged B^0 mesons by their decays into $D^{*-}e^+\nu$ and $D^{*-}\mu^+\nu$ where the D^{*-} is tagged by its decay into $\pi^-\overline{D}^0$.

[28] AVERILL 89 is an estimate of the B^0 mean lifetime assuming that $B^0 \to D^{*+}$ + X always.

$\tau_{B^0}/\tau_{\overline{B}^0}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
1.000±0.008±0.009	[1] AAIJ	14E	LHCB	pp at 7 TeV

[1] Measured using $B^0 \to J/\psi K^{*0}$ decays.

MEAN LIFE RATIO τ_{B^+}/τ_{B^0}

τ_{B^+}/τ_{B^0} (direct measurements)

"OUR EVALUATION" is an average using rescaled values of the data listed below. The average and rescaling were performed by the Heavy Flavor Averaging Group (HFLAV) and are described at https://hflav.web.cern.ch/. The averaging/rescaling procedure takes into account correlations between the measurements and asymmetric lifetime errors.

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.076±0.004 OUR EVALUATION					
1.074±0.005±0.003		[1] AAIJ	14E	LHCB	pp at 7 TeV
1.088±0.009±0.004		[2] AALTONEN	11	CDF	$p\overline{p}$ at 1.96 TeV

$1.080 \pm 0.016 \pm 0.014$		[3] ABAZOV	05D	D0	$p\overline{p}$ at 1.96 TeV
$1.066 \pm 0.008 \pm 0.008$		[4] ABE	05B	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
$1.060 \pm 0.021 \pm 0.024$		[5] ABDALLAH	04E	DLPH	$e^+e^- \rightarrow Z$
$1.093 \pm 0.066 \pm 0.028$		[6] ACOSTA	02C	CDF	$p\overline{p}$ at 1.8 TeV
$1.082 \pm 0.026 \pm 0.012$		[7] AUBERT	01F	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
$1.085 \pm 0.059 \pm 0.018$		[3] BARATE	00R	ALEP	$e^+e^- \rightarrow Z$
$1.079 \pm 0.064 \pm 0.041$		[8] ABBIENDI	99J	OPAL	$e^+e^- \rightarrow Z$
$1.110 \pm 0.056 {}^{+0.033}_{-0.030}$		[3] ABE	98Q	CDF	$p\overline{p}$ at 1.8 TeV
$1.09 \pm 0.07 \pm 0.03$		[8] ACCIARRI	98S	L3	$e^+e^- \rightarrow Z$
$1.01 \pm 0.07 \pm 0.06$		[8] ABE	97J	SLD	$e^+e^- \rightarrow Z$
$1.27 {}^{+0.23}_{-0.19} {}^{+0.03}_{-0.02}$		[6] BUSKULIC	96J	ALEP	$e^+e^- \rightarrow Z$
$1.00 {}^{+0.17}_{-0.15} \pm 0.10$		[3,9] ABREU	95Q	DLPH	$e^+e^- \rightarrow Z$
$1.06 {}^{+0.13}_{-0.11} \pm 0.10$		[10] ADAM	95	DLPH	$e^+e^- \rightarrow Z$
$0.99 \pm 0.14 {}^{+0.05}_{-0.04}$		[3,11] AKERS	95T	OPAL	$e^+e^- \rightarrow Z$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$1.091 \pm 0.023 \pm 0.014$		[7] ABE	02H	BELL	Repl. by ABE 05B
$1.06 \pm 0.07 \pm 0.02$		[6] ABE	98B	CDF	Repl. by ACOSTA 02C
$1.01 \pm 0.11 \pm 0.02$		[3] ABE	96C	CDF	Repl. by ABE 98Q
$1.03 \pm 0.08 \pm 0.02$		[12] BUSKULIC	96J	ALEP	$e^+e^- \rightarrow Z$
$0.98 \pm 0.08 \pm 0.03$		[3] BUSKULIC	96J	ALEP	Repl. by BARATE 00R
$1.02 \pm 0.16 \pm 0.05$	269	[6] ABE	94D	CDF	Repl. by ABE 98B
$1.11 {}^{+0.51}_{-0.39} \pm 0.11$	188	[3] ABREU	93D	DLPH	Sup. by ABREU 95Q
$1.01 {}^{+0.29}_{-0.22} \pm 0.12$	253	[10] ABREU	93G	DLPH	Sup. by ADAM 95
$1.0 {}^{+0.33}_{-0.25} \pm 0.08$	130	ACTON	93C	OPAL	Sup. by AKERS 95T
$0.96 {}^{+0.19}_{-0.15} {}^{+0.18}_{-0.12}$	154	[3] BUSKULIC	93D	ALEP	Sup. by BUSKULIC 96J

[1] Measured using $B \rightarrow J/\psi K^{(*)}$ decays.

[2] Measured mean life using fully reconstructed decays ($J/\psi K^{(*)}$).

[3] Data analyzed using $D/D^* \mu X$ vertices.

[4] Measurement performed using a combined fit of *CP*-violation, mixing and lifetimes.

[5] Measurement performed using an inclusive reconstruction and B flavor identification technique.

[6] Measured using fully reconstructed decays.

[7] Events are selected in which one B meson is fully reconstructed while the second B meson is reconstructed inclusively.

[8] Data analyzed using charge of secondary vertex.

[9] ABREU 95Q assumes $B(B^0 \rightarrow D^{**-} \ell^+ \nu_\ell) = 3.2 \pm 1.7\%$.

[10] Data analyzed using vertex-charge technique to tag B charge.

[11] AKERS 95T assumes $B(B^0 \rightarrow D_s{}^{(*)} D^{0\,(*)}) = 5.0 \pm 0.9\%$ to find B^+/B^0 yield.

[12] Combined result of $D/D^* \ell X$ analysis and fully reconstructed B analysis.

τ_{B^+}/τ_{B^0} (inferred from branching fractions)

These measurements are inferred from the branching fractions for semileptonic decay or other spectator-dominated decays by assuming that the rates for such decays are equal for B^0 and B^+. We do not use measurements which assume equal production of B^0 and B^+ because of the large uncertainty in the production ratio.

"OUR EVALUATION" has been obtained by the Heavy Flavor Averaging Group (HFLAV) by taking into account correlations between measurements.

VALUE	*CL%*	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.076±0.034 OUR EVALUATION						
1.07 ±0.04 OUR AVERAGE						
1.07 ±0.04 ±0.03			URQUIJO	07	BELL	$e^+ e^- \to \Upsilon(4S)$
1.067±0.041±0.033			AUBERT,B	06Y	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$0.95 ^{+0.117}_{-0.080} \pm 0.091$			[1] ARTUSO	97	CLE2	$e^+ e^- \to \Upsilon(4S)$
1.15 ±0.17 ±0.06			[2] JESSOP	97	CLE2	$e^+ e^- \to \Upsilon(4S)$
0.93 ±0.18 ±0.12			[3] ATHANAS	94	CLE2	Sup. by ARTUSO 97
0.91 ±0.27 ±0.21			[4] ALBRECHT	92C	ARG	$e^+ e^- \to \Upsilon(4S)$
1.0 ±0.4		29	[4,5] ALBRECHT	92G	ARG	$e^+ e^- \to \Upsilon(4S)$
0.89 ±0.19 ±0.13			[4] FULTON	91	CLEO	$e^+ e^- \to \Upsilon(4S)$
1.00 ±0.23 ±0.14			[4] ALBRECHT	89L	ARG	$e^+ e^- \to \Upsilon(4S)$
0.49 to 2.3	90		[6] BEAN	87B	CLEO	$e^+ e^- \to \Upsilon(4S)$

[1] ARTUSO 97 uses partial reconstruction of $B \to D^* \ell \nu_\ell$ and independent of B^0 and B^+ production fraction.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] ATHANAS 94 uses events tagged by fully reconstructed B^- decays and partially or fully reconstructed B^0 decays.

[4] Assumes equal production of B^0 and B^+.

[5] ALBRECHT 92G data analyzed using $B \to D_s \overline{D}$, $D_s \overline{D}^*$, $D_s^* \overline{D}$, $D_s^* \overline{D}^*$ events.

[6] BEAN 87B assume the fraction of $B^0 \overline{B}^0$ events at the $\Upsilon(4S)$ is 0.41.

$\Delta\Gamma_{B^0_d} \,/\, \Gamma_{B^0_d}$

$\Gamma_{B^0_d}$ and $\Delta\Gamma_{B^0_d}$ are the decay rate average and difference between two B^0_d *CP* eigenstates (light − heavy). The λ_{CP} characterizes B^0 and $\overline{B}^0$ decays to states of charmonium plus K^0_L, see the review on "*CP* Violation" in the reviews section.

"OUR EVALUATION" has been obtained by the Heavy Flavor Averaging Group (HFLAV) by taking into account correlations between measurements.

VALUE (units 10^{-2})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.1 ±1.0 OUR EVALUATION					
0.1 ±1.0 OUR AVERAGE					
3.4 ±2.3 ±2.4		[1] SIRUNYAN	18BY	CMS	*pp* at 8 TeV
− 0.1 ±1.1 ±0.9		[2] AABOUD	16G	ATLS	*pp* at 7, 8 TeV
− 4.4 ±2.5 ±1.1		[3] AAIJ	14E	LHCB	*pp* at 7 TeV

1.7 ±1.8 ±1.1		[4] HIGUCHI	12	BELL	$e^+e^- \to \Upsilon(4S)$
0.8 ±3.7 ±1.8		[5] AUBERT,B	04C	BABR	$e^+e^- \to \Upsilon(4S)$
0 ±9		[6] ABDALLAH	03B	DLPH	$e^+e^- \to Z$

• • • We do not use the following data for averages, fits, limits, etc. • • •

0.50±1.38		ABAZOV	14	D0	$p\overline{p}$ at 1.96 TeV
< 80	95	[7] BEHRENS	00B	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Measured using $B^0 \to J/\psi K^*(892)^0$ and $B^0 \to J/\psi K^0_S$ decays, and assuming β = 21.9 ± 0.7 degrees.

[2] Measured from the ratio of decay time distributions of $B^0 \to J/\psi K^0_S$ and $B^0 \to J/\psi K^{*0}$ decays.

[3] Measured using the effective lifetimes of $B^0 \to J/\psi K^0_S$ and $B^0 \to J/\psi K^{*0}$ decays.

[4] Reports $-\Delta\Gamma_d/\Gamma_d$ using $B^0 \to J/\psi K^0_S$, $J/\psi K^0_L$, $D^-\pi^+$, $D^{*-}\pi^+$, $D^{*-}\rho^+$, and $D^{*-}\ell^+\nu$ decays.

[5] Corresponds to 90% confidence range [−0.084, 0.068].

[6] Used the measured τ_{B^0} = 1.55 ± 0.03 ps. Corresponds to an upper limit of < 0.18 at 95% C.L.

[7] BEHRENS 00B uses high-momentum lepton tags and partially reconstructed $\overline{B}^0 \to D^{*+}\pi^-$, ρ^- decays to determine the flavor of the B meson. Assumes Δ_{md}=0.478 ± 0.018 ps^{-1} and τ_{B^0}=1.548 ± 0.032 ps.

B^0 DECAY MODES

$\overline{B}^0$ modes are charge conjugates of the modes below. Reactions indicate the weak decay vertex and do not include mixing. Modes which do not identify the charge state of the B are listed in the $B^\pm/B^0$ ADMIXTURE section.

The branching fractions listed below assume 50% $B^0\overline{B}^0$ and 50% B^+B^- production at the $\Upsilon(4S)$. We have attempted to bring older measurements up to date by rescaling their assumed $\Upsilon(4S)$ production ratio to 50:50 and their assumed D, D_s, D^*, and ψ branching ratios to current values whenever this would affect our averages and best limits significantly.

Indentation is used to indicate a subchannel of a previous reaction. All resonant subchannels have been corrected for resonance branching fractions to the final state so the sum of the subchannel branching fractions can exceed that of the final state.

For inclusive branching fractions, *e.g.*, $B \to D^\pm X$, the values usually are multiplicities, not branching fractions. They can be greater than one.

	Mode		Fraction (Γ_i/Γ)	Scale factor/ Confidence level
Γ_1	$\ell^+\nu_\ell X$	[a]	(10.33± 0.28) %	
Γ_2	$e^+\nu_e X_c$		(10.1 ± 0.4) %	
Γ_3	$\ell^+\nu_\ell X_u$		(1.51± 0.19) × 10^{-3}	
Γ_4	$D\ell^+\nu_\ell X$		(9.3 ± 0.8) %	
Γ_5	$D^-\ell^+\nu_\ell$	[a]	(2.24± 0.09) %	
Γ_6	$D^-\tau^+\nu_\tau$		(1.05± 0.23) %	

Γ_{7}	$D^*(2010)^- \ell^+ \nu_\ell$	[a]	(4.97 ± 0.12) %	
Γ_{8}	$D^*(2010)^- \tau^+ \nu_\tau$		(1.58 ± 0.09) %	S=1.1
Γ_{9}	$\overline{D}^0 \pi^- \ell^+ \nu_\ell$		$(4.1 \pm 0.5) \times 10^{-3}$	
Γ_{10}	$D_0^*(2300)^- \ell^+ \nu_\ell$, $D_0^{*-} \to \overline{D}^0 \pi^-$		$(3.0 \pm 1.2) \times 10^{-3}$	S=1.8
Γ_{11}	$D_2^*(2460)^- \ell^+ \nu_\ell$, $D_2^{*-} \to \overline{D}^0 \pi^-$		$(1.21 \pm 0.33) \times 10^{-3}$	S=1.8
Γ_{12}	$\overline{D}^{(*)} \mathrm{n}\pi \ell^+ \nu_\ell (\mathrm{n} \geq 1)$		(2.3 ± 0.5) %	
Γ_{13}	$\overline{D}^{*0} \pi^- \ell^+ \nu_\ell$		$(5.8 \pm 0.8) \times 10^{-3}$	S=1.4
Γ_{14}	$D_1(2420)^- \ell^+ \nu_\ell$, $D_1^- \to \overline{D}^{*0} \pi^-$		$(2.80 \pm 0.28) \times 10^{-3}$	
Γ_{15}	$D_1'(2430)^- \ell^+ \nu_\ell$, $D_1'^- \to \overline{D}^{*0} \pi^-$		$(3.1 \pm 0.9) \times 10^{-3}$	
Γ_{16}	$D_2^*(2460)^- \ell^+ \nu_\ell$, $D_2^{*-} \to \overline{D}^{*0} \pi^-$		$(6.8 \pm 1.2) \times 10^{-4}$	
Γ_{17}	$D^- \pi^+ \pi^- \ell^+ \nu_\ell$		$(1.3 \pm 0.5) \times 10^{-3}$	
Γ_{18}	$D^{*-} \pi^+ \pi^- \ell^+ \nu_\ell$		$(1.4 \pm 0.5) \times 10^{-3}$	
Γ_{19}	$\rho^- \ell^+ \nu_\ell$	[a]	$(2.94 \pm 0.21) \times 10^{-4}$	
Γ_{20}	$\pi^- \ell^+ \nu_\ell$	[a]	$(1.50 \pm 0.06) \times 10^{-4}$	
Γ_{21}	$\pi^- \mu^+ \nu_\mu$			
Γ_{22}	$\pi^- \tau^+ \nu_\tau$		$< 2.5 \times 10^{-4}$	CL=90%

Inclusive modes

Γ_{23}	$K^\pm X$	(78 ± 8) %	
Γ_{24}	$D^0 X$	(8.1 ± 1.5) %	
Γ_{25}	$\overline{D}^0 X$	(47.4 ± 2.8) %	
Γ_{26}	$D^+ X$	< 3.9 %	CL=90%
Γ_{27}	$D^- X$	(36.9 ± 3.3) %	
Γ_{28}	$D_s^+ X$	$(10.3 \, {}^{+2.1}_{-1.8})$ %	
Γ_{29}	$D_s^- X$	< 2.6 %	CL=90%
Γ_{30}	$\Lambda_c^+ X$	< 3.1 %	CL=90%
Γ_{31}	$\overline{\Lambda}_c^- X$	$(5.0 \, {}^{+2.1}_{-1.5})$ %	
Γ_{32}	$\overline{c} X$	(95 ± 5) %	
Γ_{33}	$c X$	(24.6 ± 3.1) %	
Γ_{34}	$\overline{c} / c X$	(119 ± 6) %	

D, *D**, or *D*

Γ_{35}	$D^- \pi^+$	$(2.51 \pm 0.08) \times 10^{-3}$
Γ_{36}	$D^- \rho^+$	$(7.6 \pm 1.2) \times 10^{-3}$
Γ_{37}	$D^- K^0 \pi^+$	$(4.9 \pm 0.9) \times 10^{-4}$
Γ_{38}	$D^- K^*(892)^+$	$(4.5 \pm 0.7) \times 10^{-4}$
Γ_{39}	$D^- \omega \pi^+$	$(2.8 \pm 0.6) \times 10^{-3}$
Γ_{40}	$D^- K^+$	$(2.05 \pm 0.08) \times 10^{-4}$
Γ_{41}	$D^- K^+ \pi^+ \pi^-$	$(3.5 \pm 0.8) \times 10^{-4}$

Γ_{42}	$D^- K^+ \overline{K}{}^0$		$< 3.1 \times 10^{-4}$	CL=90%
Γ_{43}	$D^- K^+ \overline{K}{}^*(892)^0$		$(8.8 \pm 1.9) \times 10^{-4}$	
Γ_{44}	$\overline{D}{}^0 \pi^+ \pi^-$		$(8.8 \pm 0.5) \times 10^{-4}$	
Γ_{45}	$D^*(2010)^- \pi^+$		$(2.74 \pm 0.13) \times 10^{-3}$	
Γ_{46}	$\overline{D}{}^0 K^+ K^-$		$(6.1 \pm 0.5) \times 10^{-5}$	
Γ_{47}	$D^- \pi^+ \pi^+ \pi^-$		$(6.0 \pm 0.6) \times 10^{-3}$	
Γ_{48}	$(D^- \pi^+ \pi^+ \pi^-)$ nonresonant		$(3.9 \pm 1.9) \times 10^{-3}$	
Γ_{49}	$D^- \pi^+ \rho^0$		$(1.1 \pm 1.0) \times 10^{-3}$	
Γ_{50}	$D^- a_1(1260)^+$		$(6.0 \pm 3.3) \times 10^{-3}$	
Γ_{51}	$D^*(2010)^- \pi^+ \pi^0$		(1.5 ± 0.5) %	
Γ_{52}	$D^*(2010)^- \rho^+$		$(6.8 \pm 0.9) \times 10^{-3}$	
Γ_{53}	$D^*(2010)^- K^+$		$(2.12 \pm 0.15) \times 10^{-4}$	
Γ_{54}	$D^*(2010)^- K^0 \pi^+$		$(3.0 \pm 0.8) \times 10^{-4}$	
Γ_{55}	$D^*(2010)^- K^*(892)^+$		$(3.3 \pm 0.6) \times 10^{-4}$	
Γ_{56}	$D^*(2010)^- K^+ \overline{K}{}^0$		$< 4.7 \times 10^{-4}$	CL=90%
Γ_{57}	$D^*(2010)^- K^+ \overline{K}{}^*(892)^0$		$(1.29 \pm 0.33) \times 10^{-3}$	
Γ_{58}	$D^*(2010)^- \pi^+ \pi^+ \pi^-$		$(7.21 \pm 0.29) \times 10^{-3}$	
Γ_{59}	$(D^*(2010)^- \pi^+ \pi^+ \pi^-)$ nonresonant		$(0.0 \pm 2.5) \times 10^{-3}$	
Γ_{60}	$D^*(2010)^- \pi^+ \rho^0$		$(5.7 \pm 3.2) \times 10^{-3}$	
Γ_{61}	$D^*(2010)^- a_1(1260)^+$		(1.30 ± 0.27) %	
Γ_{62}	$\overline{D}_1(2420)^0 \pi^- \pi^+$, $\overline{D}{}^0_1 \to D^{*-} \pi^+$		$(1.47 \pm 0.35) \times 10^{-4}$	
Γ_{63}	$D^*(2010)^- K^+ \pi^- \pi^+$		$(4.7 \pm 0.4) \times 10^{-4}$	
Γ_{64}	$D^*(2010)^- \pi^+ \pi^+ \pi^- \pi^0$		(1.76 ± 0.27) %	
Γ_{65}	$D^{*-} 3\pi^+ 2\pi^-$		$(4.7 \pm 0.9) \times 10^{-3}$	
Γ_{66}	$D^*(2010)^- \omega \pi^+$		$(2.46 \pm 0.18) \times 10^{-3}$	S=1.2
Γ_{67}	$\overline{D}_1(2430)^0 \omega$, $\overline{D}{}^0_1 \to D^{*-} \pi^+$		$(2.7 {}^{+0.8}_{-0.4}) \times 10^{-4}$	
Γ_{68}	$D^{*-} \rho(1450)^+$, $\rho^+ \to \omega \pi^+$		$(1.07 {}^{+0.40}_{-0.34}) \times 10^{-3}$	
Γ_{69}	$\overline{D}_1(2420)^0 \omega$, $\overline{D}{}^0_1 \to D^{*-} \pi^+$		$(7.0 \pm 2.2) \times 10^{-5}$	
Γ_{70}	$\overline{D}{}^*_2(2460)^0 \omega$, $\overline{D}{}^0_2 \to D^{*-} \pi^+$		$(4.0 \pm 1.4) \times 10^{-5}$	
Γ_{71}	$D^{*-} b_1(1235)^+$, $b_1^+ \to \omega \pi^+$		$< 7 \times 10^{-5}$	CL=90%
Γ_{72}	$\overline{D}{}^{**-} \pi^+$	[b]	$(1.9 \pm 0.9) \times 10^{-3}$	
Γ_{73}	$D_1(2420)^- \pi^+$, $D_1^- \to D^- \pi^+ \pi^-$		$(9.9 {}^{+2.0}_{-2.5}) \times 10^{-5}$	
Γ_{74}	$D_1(2420)^- \pi^+$, $D_1^- \to D^{*-} \pi^+ \pi^-$		$< 3.3 \times 10^{-5}$	CL=90%
Γ_{75}	$\overline{D}{}^*_2(2460)^- \pi^+$, $D^{*-}_2 \to D^0 \pi^-$		$(2.38 \pm 0.16) \times 10^{-4}$	
Γ_{76}	$\overline{D}{}^*_0(2400)^- \pi^+$, $D^{*-}_0 \to D^0 \pi^-$		$(7.6 \pm 0.8) \times 10^{-5}$	
Γ_{77}	$D^*_2(2460)^- \pi^+$, $D^{*-}_2 \to D^{*-} \pi^+ \pi^-$		$< 2.4 \times 10^{-5}$	CL=90%
Γ_{78}	$\overline{D}{}^*_2(2460)^- \rho^+$		$< 4.9 \times 10^{-3}$	CL=90%

Γ_{79}	$D^0 \overline{D}^0$	$(1.4 \pm 0.7) \times 10^{-5}$	
Γ_{80}	$D^{*0} \overline{D}^0$	$< 2.9 \times 10^{-4}$	CL=90%
Γ_{81}	$D^- D^+$	$(2.11 \pm 0.18) \times 10^{-4}$	
Γ_{82}	$D^\pm D^{*\mp}$ (CP-averaged)	$(6.1 \pm 0.6) \times 10^{-4}$	
Γ_{83}	$D^- D_s^+$	$(7.2 \pm 0.8) \times 10^{-3}$	
Γ_{84}	$D^*(2010)^- D_s^+$	$(8.0 \pm 1.1) \times 10^{-3}$	
Γ_{85}	$D^- D_s^{*+}$	$(7.4 \pm 1.6) \times 10^{-3}$	
Γ_{86}	$D^*(2010)^- D_s^{*+}$	(1.77 ± 0.14) %	
Γ_{87}	$D_{s0}(2317)^- K^+$, $D_{s0}^- \to D_s^- \pi^0$	$(4.2 \pm 1.4) \times 10^{-5}$	
Γ_{88}	$D_{s0}(2317)^- \pi^+$, $D_{s0}^- \to D_s^- \pi^0$	$< 2.5 \times 10^{-5}$	CL=90%
Γ_{89}	$D_{sJ}(2457)^- K^+$, $D_{sJ}^- \to D_s^- \pi^0$	$< 9.4 \times 10^{-6}$	CL=90%
Γ_{90}	$D_{sJ}(2457)^- \pi^+$, $D_{sJ}^- \to D_s^- \pi^0$	$< 4.0 \times 10^{-6}$	CL=90%
Γ_{91}	$D_s^- D_s^+$	$< 3.6 \times 10^{-5}$	CL=90%
Γ_{92}	$D_s^{*-} D_s^+$	$< 1.3 \times 10^{-4}$	CL=90%
Γ_{93}	$D_s^{*-} D_s^{*+}$	$< 2.4 \times 10^{-4}$	CL=90%
Γ_{94}	$D_{s0}^*(2317)^+ D^-$, $D_{s0}^{*+} \to D_s^+ \pi^0$	$(1.06 \pm 0.16) \times 10^{-3}$	S=1.1
Γ_{95}	$D_{s0}(2317)^+ D^-$, $D_{s0}^+ \to D_s^{*+} \gamma$	$< 9.5 \times 10^{-4}$	CL=90%
Γ_{96}	$D_{s0}(2317)^+ D^*(2010)^-$, $D_{s0}^+ \to D_s^+ \pi^0$	$(1.5 \pm 0.6) \times 10^{-3}$	
Γ_{97}	$D_{sJ}(2457)^+ D^-$	$(3.5 \pm 1.1) \times 10^{-3}$	
Γ_{98}	$D_{sJ}(2457)^+ D^-$, $D_{sJ}^+ \to D_s^+ \gamma$	$(6.5 {}^{+1.7}_{-1.4}) \times 10^{-4}$	
Γ_{99}	$D_{sJ}(2457)^+ D^-$, $D_{sJ}^+ \to D_s^{*+} \gamma$	$< 6.0 \times 10^{-4}$	CL=90%
Γ_{100}	$D_{sJ}(2457)^+ D^-$, $D_{sJ}^+ \to D_s^+ \pi^+ \pi^-$	$< 2.0 \times 10^{-4}$	CL=90%
Γ_{101}	$D_{sJ}(2457)^+ D^-$, $D_{sJ}^+ \to D_s^+ \pi^0$	$< 3.6 \times 10^{-4}$	CL=90%
Γ_{102}	$D^*(2010)^- D_{sJ}(2457)^+$	$(9.3 \pm 2.2) \times 10^{-3}$	
Γ_{103}	$D_{sJ}(2457)^+ D^*(2010)$, $D_{sJ}^+ \to D_s^+ \gamma$	$(2.3 {}^{+0.9}_{-0.7}) \times 10^{-3}$	
Γ_{104}	$D^- D_{s1}(2536)^+$, $D_{s1}^+ \to D^{*0} K^+ + D^{*+} K^0$	$(2.8 \pm 0.7) \times 10^{-4}$	
Γ_{105}	$D^- D_{s1}(2536)^+$, $D_{s1}^+ \to D^{*0} K^+$	$(1.7 \pm 0.6) \times 10^{-4}$	

Γ_{106}	$D^- D_{s1}(2536)^+$, $D_{s1}^+ \to D^{*+} K^0$	$(2.6 \pm 1.1) \times 10^{-4}$	
Γ_{107}	$D^*(2010)^- D_{s1}(2536)^+$, $D_{s1}^+ \to D^{*0} K^+ + D^{*+} K^0$	$(5.0 \pm 1.4) \times 10^{-4}$	
Γ_{108}	$D^*(2010)^- D_{s1}(2536)^+$, $D_{s1}^+ \to D^{*0} K^+$	$(3.3 \pm 1.1) \times 10^{-4}$	
Γ_{109}	$D^{*-} D_{s1}(2536)^+$, $D_{s1}^+ \to D^{*+} K^0$	$(5.0 \pm 1.7) \times 10^{-4}$	
Γ_{110}	$D^- D_{sJ}(2573)^+$, $D_{sJ}^+ \to D^0 K^+$	$(3.4 \pm 1.8) \times 10^{-5}$	
Γ_{111}	$D^*(2010)^- D_{sJ}(2573)^+$, $D_{sJ}^+ \to D^0 K^+$	$< 2 \times 10^{-4}$	CL=90%
Γ_{112}	$D^- D_{sJ}(2700)^+$, $D_{sJ}^+ \to D^0 K^+$	$(7.1 \pm 1.2) \times 10^{-4}$	
Γ_{113}	$D^+ \pi^-$	$(7.3 \pm 1.2) \times 10^{-7}$	
Γ_{114}	$D_s^+ \pi^-$	$(2.03 \pm 0.18) \times 10^{-5}$	
Γ_{115}	$D_s^{*+} \pi^-$	$(2.1 \pm 0.4) \times 10^{-5}$	S=1.4
Γ_{116}	$D_s^+ \rho^-$	$< 2.4 \times 10^{-5}$	CL=90%
Γ_{117}	$D_s^{*+} \rho^-$	$(4.1 \pm 1.3) \times 10^{-5}$	
Γ_{118}	$D_s^+ a_0^-$	$< 1.9 \times 10^{-5}$	CL=90%
Γ_{119}	$D_s^{*+} a_0^-$	$< 3.6 \times 10^{-5}$	CL=90%
Γ_{120}	$D_s^+ a_1(1260)^-$	$< 2.1 \times 10^{-3}$	CL=90%
Γ_{121}	$D_s^{*+} a_1(1260)^-$	$< 1.7 \times 10^{-3}$	CL=90%
Γ_{122}	$D_s^+ a_2^-$	$< 1.9 \times 10^{-4}$	CL=90%
Γ_{123}	$D_s^{*+} a_2^-$	$< 2.0 \times 10^{-4}$	CL=90%
Γ_{124}	$D_s^- K^+$	$(2.7 \pm 0.5) \times 10^{-5}$	S=2.7
Γ_{125}	$D_s^{*-} K^+$	$(2.19 \pm 0.30) \times 10^{-5}$	
Γ_{126}	$D_s^- K^*(892)^+$	$(3.5 \pm 1.0) \times 10^{-5}$	
Γ_{127}	$D_s^{*-} K^*(892)^+$	$(3.2 {}^{+1.5}_{-1.3}) \times 10^{-5}$	
Γ_{128}	$D_s^- \pi^+ K^0$	$(9.7 \pm 1.4) \times 10^{-5}$	
Γ_{129}	$D_s^{*-} \pi^+ K^0$	$< 1.10 \times 10^{-4}$	CL=90%
Γ_{130}	$D_s^- K^+ \pi^+ \pi^-$	$(1.7 \pm 0.5) \times 10^{-4}$	
Γ_{131}	$D_s^- \pi^+ K^*(892)^0$	$< 3.0 \times 10^{-3}$	CL=90%
Γ_{132}	$D_s^{*-} \pi^+ K^*(892)^0$	$< 1.6 \times 10^{-3}$	CL=90%
Γ_{133}	$\overline{D}^0 K^0$	$(5.2 \pm 0.7) \times 10^{-5}$	
Γ_{134}	$\overline{D}^0 K^+ \pi^-$	$(8.8 \pm 1.7) \times 10^{-5}$	
Γ_{135}	$\overline{D}^0 K^*(892)^0$	$(4.5 \pm 0.6) \times 10^{-5}$	
Γ_{136}	$\overline{D}^0 K^*(1410)^0$	$< 6.7 \times 10^{-5}$	CL=90%
Γ_{137}	$\overline{D}^0 K_0^*(1430)^0$	$(7 \pm 7) \times 10^{-6}$	
Γ_{138}	$\overline{D}^0 K_2^*(1430)^0$	$(2.1 \pm 0.9) \times 10^{-5}$	

Γ_{139}	$D_0^*(2300)^- K^+$, $D_0^{*-} \to \overline{D}^0 \pi^-$	$(1.9 \pm 0.9) \times 10^{-5}$	
Γ_{140}	$D_2^*(2460)^- K^+$, $D_2^{*-} \to \overline{D}^0 \pi^-$	$(2.03 \pm 0.35) \times 10^{-5}$	
Γ_{141}	$D_3^*(2760)^- K^+$, $D_3^{*-} \to \overline{D}^0 \pi^-$	$< 1.0 \times 10^{-6}$	CL=90%
Γ_{142}	$\overline{D}^0 K^+ \pi^-$ nonresonant	$< 3.7 \times 10^{-5}$	CL=90%
Γ_{143}	$[K^+ K^-]_D K^*(892)^0$	$(4.2 \pm 0.7) \times 10^{-5}$	
Γ_{144}	$[\pi^+ \pi^-]_D K^*(892)^0$	$(6.0 \pm 1.1) \times 10^{-5}$	
Γ_{145}	$[\pi^+ K^-]_D K^*(892)^0$		
Γ_{146}	$[K^+ \pi^-]_D K^*(892)^0$		
Γ_{147}	$[\pi^+ \pi^- \pi^+ \pi^-]_D K^{*0}$	$(4.6 \pm 0.9) \times 10^{-5}$	
Γ_{148}	$[\pi^+ K^- \pi^+ \pi^-]_D K^{*0}$		
Γ_{149}	$[K^+ \pi^- \pi^+ \pi^-]_D K^{*0}$		
Γ_{150}	$\overline{D}^0 \pi^0$	$(2.67 \pm 0.09) \times 10^{-4}$	
Γ_{151}	$\overline{D}^0 \rho^0$	$(3.21 \pm 0.21) \times 10^{-4}$	
Γ_{152}	$\overline{D}^0 f_2$	$(1.56 \pm 0.21) \times 10^{-4}$	
Γ_{153}	$\overline{D}^0 \eta$	$(2.36 \pm 0.32) \times 10^{-4}$	S=2.5
Γ_{154}	$\overline{D}^0 \eta'$	$(1.38 \pm 0.16) \times 10^{-4}$	S=1.3
Γ_{155}	$\overline{D}^0 \omega$	$(2.54 \pm 0.16) \times 10^{-4}$	
Γ_{156}	$D^0 \phi$	$< 2.3 \times 10^{-6}$	CL=95%
Γ_{157}	$D^0 K^+ \pi^-$	$(5.3 \pm 3.2) \times 10^{-6}$	
Γ_{158}	$D^0 K^*(892)^0$	$(3.0 \pm 0.6) \times 10^{-6}$	
Γ_{159}	$\overline{D}^{*0} \gamma$	$< 2.5 \times 10^{-5}$	CL=90%
Γ_{160}	$\overline{D}^*(2007)^0 \pi^0$	$(2.2 \pm 0.6) \times 10^{-4}$	S=2.6
Γ_{161}	$\overline{D}^*(2007)^0 \rho^0$	$< 5.1 \times 10^{-4}$	CL=90%
Γ_{162}	$\overline{D}^*(2007)^0 \eta$	$(2.3 \pm 0.6) \times 10^{-4}$	S=2.8
Γ_{163}	$\overline{D}^*(2007)^0 \eta'$	$(1.40 \pm 0.22) \times 10^{-4}$	
Γ_{164}	$\overline{D}^*(2007)^0 \pi^+ \pi^-$	$(6.2 \pm 2.2) \times 10^{-4}$	
Γ_{165}	$\overline{D}^*(2007)^0 K^+ \pi^-$	$(5.2 \pm 1.9) \times 10^{-5}$	
Γ_{166}	$\overline{D}^*(2007)^0 K^0$	$(3.6 \pm 1.2) \times 10^{-5}$	
Γ_{167}	$\overline{D}^*(2007)^0 K^*(892)^0$	$< 6.9 \times 10^{-5}$	CL=90%
Γ_{168}	$D^*(2007)^0 K^*(892)^0$	$< 4.0 \times 10^{-5}$	CL=90%
Γ_{169}	$D^*(2007)^0 \pi^+ \pi^+ \pi^- \pi^-$	$(2.7 \pm 0.5) \times 10^{-3}$	
Γ_{170}	$D^*(2010)^+ D^*(2010)^-$	$(8.0 \pm 0.6) \times 10^{-4}$	
Γ_{171}	$\overline{D}^*(2007)^0 \omega$	$(3.6 \pm 1.1) \times 10^{-4}$	S=3.1
Γ_{172}	$D^*(2010)^+ D^-$	$(6.1 \pm 1.5) \times 10^{-4}$	S=1.6
Γ_{173}	$D^*(2007)^0 \overline{D}^*(2007)^0$	$< 9 \times 10^{-5}$	CL=90%
Γ_{174}	$D^- D^0 K^+$	$(1.07 \pm 0.11) \times 10^{-3}$	
Γ_{175}	$D^- D^*(2007)^0 K^+$	$(3.5 \pm 0.4) \times 10^{-3}$	
Γ_{176}	$D^*(2010)^- D^0 K^+$	$(2.47 \pm 0.21) \times 10^{-3}$	
Γ_{177}	$D^*(2010)^- D^*(2007)^0 K^+$	(1.06 ± 0.09) %	
Γ_{178}	$D^- D^+ K^0$	$(7.5 \pm 1.7) \times 10^{-4}$	

Γ_{179}	$D^*(2010)^- D^+ K^0 + D^- D^*(2010)^+ K^0$	$(6.4 \pm 0.5) \times 10^{-3}$	
Γ_{180}	$D^*(2010)^- D^*(2010)^+ K^0$	$(8.1 \pm 0.7) \times 10^{-3}$	
Γ_{181}	$D^{*-} D_{s1}(2536)^+, \; D_{s1}^+ \to D^{*+} K^0$	$(8.0 \pm 2.4) \times 10^{-4}$	
Γ_{182}	$\overline{D}^0 D^0 K^0$	$(2.7 \pm 1.1) \times 10^{-4}$	
Γ_{183}	$D^0 \overline{D}^0 K^+ \pi^-$	$(3.5 \pm 0.5) \times 10^{-4}$	
Γ_{184}	$\overline{D}^0 D^*(2007)^0 K^0 + \overline{D}^*(2007)^0 D^0 K^0$	$(1.1 \pm 0.5) \times 10^{-3}$	
Γ_{185}	$\overline{D}^*(2007)^0 D^*(2007)^0 K^0$	$(2.4 \pm 0.9) \times 10^{-3}$	
Γ_{186}	$(\overline{D}+\overline{D}^*)(D+D^*)K$	(3.68 ± 0.26) %	

Charmonium modes

Γ_{187}	$\eta_c K^0$	$(8.2 \pm 1.1) \times 10^{-4}$	
Γ_{188}	$\eta_c(1S) K^+ \pi^-$	$(6.4 \pm 0.7) \times 10^{-4}$	
Γ_{189}	$\eta_c(1S) K^+ \pi^-$ (NR)	$(6.6 \pm 1.4) \times 10^{-5}$	
Γ_{190}	$X(4100)^- K^+, \; X^- \to \eta_c \pi^-$	$(2.1 \pm 1.1) \times 10^{-5}$	
Γ_{191}	$\eta_c(1S) K^*(1410)^0$	$(2.0 \pm 1.6) \times 10^{-4}$	
Γ_{192}	$\eta_c(1S) K_0^*(1430)^0$	$(1.8 \pm 0.4) \times 10^{-4}$	
Γ_{193}	$\eta_c(1S) K_2^*(1430)^0$	$(5.3 \, ^{+2.4}_{-2.9}) \times 10^{-5}$	
Γ_{194}	$\eta_c(1S) K^*(1680)^0$	$(4 \pm 4) \times 10^{-5}$	
Γ_{195}	$\eta_c(1S) K_0^*(1950)^0$	$(4.7 \, ^{+3.2}_{-4.0}) \times 10^{-5}$	
Γ_{196}	$\eta_c K^*(892)^0$	$(5.2 \, ^{+0.8}_{-0.9}) \times 10^{-4}$	S=1.6
Γ_{197}	$\eta_c(2S) K_S^0, \; \eta_c \to p\overline{p}\pi^+\pi^-$	$(4.2 \, ^{+1.4}_{-1.2}) \times 10^{-7}$	
Γ_{198}	$\eta_c(2S) K^{*0}$	$< 3.9 \times 10^{-4}$	CL=90%
Γ_{199}	$h_c(1P) K_S^0$	$< 1.4 \times 10^{-5}$	
Γ_{200}	$h_c(1P) K^{*0}$	$< 4 \times 10^{-4}$	CL=90%
Γ_{201}	$J/\psi(1S) K^0$	$(8.91 \pm 0.21) \times 10^{-4}$	
Γ_{202}	$J/\psi(1S) K^+ \pi^-$	$(1.15 \pm 0.05) \times 10^{-3}$	
Γ_{203}	$J/\psi(1S) K^*(892)^0$	$(1.27 \pm 0.05) \times 10^{-3}$	
Γ_{204}	$J/\psi(1S) \eta K_S^0$	$(5.4 \pm 0.9) \times 10^{-5}$	
Γ_{205}	$J/\psi(1S) \eta' K_S^0$	$< 2.5 \times 10^{-5}$	CL=90%
Γ_{206}	$J/\psi(1S) \phi K^0$	$(4.9 \pm 1.0) \times 10^{-5}$	S=1.3
Γ_{207}	$J/\psi(1S) \omega K^0$	$(2.3 \pm 0.4) \times 10^{-4}$	
Γ_{208}	$\chi_{c0}(3915), \; \chi_{c0} \to J/\psi \omega$	$(2.1 \pm 0.9) \times 10^{-5}$	
Γ_{209}	$J/\psi(1S) K(1270)^0$	$(1.3 \pm 0.5) \times 10^{-3}$	
Γ_{210}	$J/\psi(1S) \pi^0$	$(1.66 \pm 0.10) \times 10^{-5}$	
Γ_{211}	$J/\psi(1S) \eta$	$(1.08 \pm 0.23) \times 10^{-5}$	S=1.5
Γ_{212}	$J/\psi(1S) \pi^+ \pi^-$	$(4.00 \pm 0.15) \times 10^{-5}$	
Γ_{213}	$J/\psi(1S) \pi^+ \pi^-$ nonresonant	$< 1.2 \times 10^{-5}$	CL=90%
Γ_{214}	$J/\psi(1S) f_0(500), \; f_0 \to \pi\pi$	$(8.8 \, ^{+1.2}_{-1.6}) \times 10^{-6}$	

Γ_{215}	$J/\psi(1S) f_2$		$(3.3 {}^{+0.5}_{-0.6}) \times 10^{-6}$	S=1.5
Γ_{216}	$J/\psi(1S) \rho^0$		$(2.55 {}^{+0.18}_{-0.16}) \times 10^{-5}$	
Γ_{217}	$J/\psi(1S) f_0(980),\ f_0 \to \pi^+ \pi^-$		$< 1.1 \times 10^{-6}$	CL=90%
Γ_{218}	$J/\psi(1S) \rho(1450)^0,\ \rho^0 \to \pi \pi$		$(2.9 {}^{+1.6}_{-0.7}) \times 10^{-6}$	
Γ_{219}	$J/\psi \rho(1700)^0,\ \rho^0 \to \pi^+ \pi^-$		$(2.0 \pm 1.3) \times 10^{-6}$	
Γ_{220}	$J/\psi(1S) \omega$		$(1.8 {}^{+0.7}_{-0.5}) \times 10^{-5}$	
Γ_{221}	$J/\psi(1S) K^+ K^-$		$(2.54 \pm 0.35) \times 10^{-6}$	
Γ_{222}	$J/\psi(1S) a_0(980),\ a_0 \to K^+ K^-$		$(4.7 \pm 3.4) \times 10^{-7}$	
Γ_{223}	$J/\psi(1S) \phi$		$< 1.1 \times 10^{-7}$	CL=90%
Γ_{224}	$J/\psi(1S) \eta'(958)$		$(7.6 \pm 2.4) \times 10^{-6}$	
Γ_{225}	$J/\psi(1S) K^0 \pi^+ \pi^-$		$(4.5 \pm 0.4) \times 10^{-4}$	
Γ_{226}	$J/\psi(1S) K^0 K^- \pi^+ +$ c.c.		$< 2.1 \times 10^{-5}$	CL=90%
Γ_{227}	$J/\psi(1S) K^0 K^+ K^-$		$(2.5 \pm 0.7) \times 10^{-5}$	S=1.8
Γ_{228}	$J/\psi(1S) K^0 K^\pm \pi^\mp$			
Γ_{229}	$J/\psi(1S) K^0 \rho^0$		$(5.4 \pm 3.0) \times 10^{-4}$	
Γ_{230}	$J/\psi(1S) K^*(892)^+ \pi^-$		$(8 \pm 4) \times 10^{-4}$	
Γ_{231}	$J/\psi(1S) \pi^+ \pi^- \pi^+ \pi^-$		$(1.44 \pm 0.12) \times 10^{-5}$	
Γ_{232}	$J/\psi(1S) f_1(1285)$		$(8.4 \pm 2.1) \times 10^{-6}$	
Γ_{233}	$J/\psi(1S) K^*(892)^0 \pi^+ \pi^-$		$(6.6 \pm 2.2) \times 10^{-4}$	
Γ_{234}	$\eta_{c2}(1D) K^0_S,\ \eta_{c2} \to h_c \gamma$		$< 3.5 \times 10^{-5}$	CL=90%
Γ_{235}	$\eta_{c2}(1D) \pi^- K^+,\ \eta_{c2} \to h_c \gamma$		$< 1.0 \times 10^{-4}$	CL=90%
Γ_{236}	$\chi_{c1}(3872)^- K^+$		$< 5 \times 10^{-4}$	CL=90%
Γ_{237}	$\chi_{c1}(3872)^- K^+,\ \chi_{c1}(3872)^- \to J/\psi(1S) \pi^- \pi^0$	[c]	$< 4.2 \times 10^{-6}$	CL=90%
Γ_{238}	$\chi_{c1}(3872) K^0$		$(1.1 \pm 0.4) \times 10^{-4}$	
Γ_{239}	$\chi_{c1}(3872) K^*(892)^0$		$(1.0 \pm 0.5) \times 10^{-4}$	
Γ_{240}	$\chi_{c1}(3872) K^+ \pi^-$		$(2.1 \pm 0.8) \times 10^{-4}$	
Γ_{241}	$\chi_{c1}(3872) \gamma$		$< 1.3 \times 10^{-5}$	CL=90%
Γ_{242}	$Z_c(4430)^\pm K^\mp,\ Z_c^\pm \to \psi(2S) \pi^\pm$		$(6.0 {}^{+3.0}_{-2.4}) \times 10^{-5}$	
Γ_{243}	$Z_c(4430)^\pm K^\mp,\ Z_c^\pm \to J/\psi \pi^\pm$		$(5.4 {}^{+4.0}_{-1.2}) \times 10^{-6}$	
Γ_{244}	$Z_c(3900)^\pm K^\mp,\ Z_c^\pm \to J/\psi \pi^\pm$		$< 9 \times 10^{-7}$	
Γ_{245}	$Z_c(4200)^\pm K^\mp,\ X^\pm \to J/\psi \pi^\pm$		$(2.2 {}^{+1.3}_{-0.8}) \times 10^{-5}$	
Γ_{246}	$J/\psi(1S) p \overline{p}$		$(4.5 \pm 0.6) \times 10^{-7}$	
Γ_{247}	$J/\psi(1S) \gamma$		$< 1.5 \times 10^{-6}$	CL=90%
Γ_{248}	$J/\psi \mu^+ \mu^-,\ J/\psi \to \mu^+ \mu^-$		$< 1.0 \times 10^{-9}$	CL=95%
Γ_{249}	$J/\psi(1S) \overline{D}^0$		$< 1.3 \times 10^{-5}$	CL=90%

Γ_{250}	$\psi(2S)\pi^0$	$(1.17\pm 0.19)\times 10^{-5}$	
Γ_{251}	$\psi(2S)K^0$	$(5.8\pm 0.5)\times 10^{-4}$	
Γ_{252}	$\psi(2S)K^0\pi^+\pi^-$	$(2.81\pm 0.30)\times 10^{-4}$	
Γ_{253}	$\psi(3770)K^0,\ \psi\to\ \overline{D}^0 D^0$	$< 1.23\times 10^{-4}$	CL=90%
Γ_{254}	$\psi(3770)K^0,\ \psi\to\ D^- D^+$	$< 1.88\times 10^{-4}$	CL=90%
Γ_{255}	$\psi(2S)\pi^+\pi^-$	$(2.24\pm 0.35)\times 10^{-5}$	
Γ_{256}	$\psi(2S)K^+\pi^-$	$(5.8\pm 0.4)\times 10^{-4}$	
Γ_{257}	$\psi(2S)K^*(892)^0$	$(5.9\pm 0.4)\times 10^{-4}$	
Γ_{258}	$\chi_{c0}K^0$	$(1.9\pm 0.4)\times 10^{-4}$	
Γ_{259}	$\chi_{c0}K^*(892)^0$	$(1.7\pm 0.4)\times 10^{-4}$	
Γ_{260}	$\chi_{c1}\pi^0$	$(1.12\pm 0.28)\times 10^{-5}$	
Γ_{261}	$\chi_{c1}K^0$	$(3.95\pm 0.27)\times 10^{-4}$	
Γ_{262}	$\chi_{c1}\pi^- K^+$	$(4.97\pm 0.30)\times 10^{-4}$	
Γ_{263}	$\chi_{c1}K^*(892)^0$	$(2.38\pm 0.19)\times 10^{-4}$	S=1.2
Γ_{264}	$X(4051)^- K^+,\ X^-\to\ \chi_{c1}\pi^-$	$(3.0\ {}^{+4.0}_{-1.8})\times 10^{-5}$	
Γ_{265}	$X(4248)^- K^+,\ X^-\to\ \chi_{c1}\pi^-$	$(4.0\ {}^{+20.0}_{-1.0})\times 10^{-5}$	
Γ_{266}	$\chi_{c1}\pi^+\pi^- K^0$	$(3.2\pm 0.5)\times 10^{-4}$	
Γ_{267}	$\chi_{c1}\pi^-\pi^0 K^+$	$(3.5\pm 0.6)\times 10^{-4}$	
Γ_{268}	$\chi_{c2}K^0$	$< 1.5\times 10^{-5}$	CL=90%
Γ_{269}	$\chi_{c2}K^*(892)^0$	$(4.9\pm 1.2)\times 10^{-5}$	S=1.1
Γ_{270}	$\chi_{c2}\pi^- K^+$	$(7.2\pm 1.0)\times 10^{-5}$	
Γ_{271}	$\chi_{c2}\pi^+\pi^- K^0$	$< 1.70\times 10^{-4}$	CL=90%
Γ_{272}	$\chi_{c2}\pi^-\pi^0 K^+$	$< 7.4\times 10^{-5}$	CL=90%
Γ_{273}	$\psi(4660)K^0,\ \psi\to\ \Lambda_c^+\Lambda_c^-$	$< 2.3\times 10^{-4}$	CL=90%
Γ_{274}	$\psi(4230)^0 K^0,\ \psi^0\to\ J/\psi\pi^+\pi^-$	$< 1.7\times 10^{-5}$	CL=90%

K or *K** modes

Γ_{275}	$K^+\pi^-$	$(1.96\pm 0.05)\times 10^{-5}$	
Γ_{276}	$K^0\pi^0$	$(9.9\pm 0.5)\times 10^{-6}$	
Γ_{277}	$\eta' K^0$	$(6.6\pm 0.4)\times 10^{-5}$	S=1.4
Γ_{278}	$\eta' K^*(892)^0$	$(2.8\pm 0.6)\times 10^{-6}$	
Γ_{279}	$\eta' K_0^*(1430)^0$	$(6.3\pm 1.6)\times 10^{-6}$	
Γ_{280}	$\eta' K_2^*(1430)^0$	$(1.37\pm 0.32)\times 10^{-5}$	
Γ_{281}	ηK^0	$(1.23\ {}^{+0.27}_{-0.24})\times 10^{-6}$	
Γ_{282}	$\eta K^*(892)^0$	$(1.59\pm 0.10)\times 10^{-5}$	
Γ_{283}	$\eta K_0^*(1430)^0$	$(1.10\pm 0.22)\times 10^{-5}$	
Γ_{284}	$\eta K_2^*(1430)^0$	$(9.6\pm 2.1)\times 10^{-6}$	
Γ_{285}	ωK^0	$(4.8\pm 0.4)\times 10^{-6}$	
Γ_{286}	$a_0(980)^0 K^0,\ a_0^0\to\ \eta\pi^0$	$< 7.8\times 10^{-6}$	CL=90%
Γ_{287}	$b_1^0 K^0,\ b_1^0\to\ \omega\pi^0$	$< 7.8\times 10^{-6}$	CL=90%

Γ_{288}	$a_0(980)^\pm K^\mp,\ a_0^\pm \to \eta\pi^\pm$		$< 1.9 \times 10^{-6}$	CL=90%
Γ_{289}	$b_1^- K^+,\ b_1^- \to \omega\pi^-$		$(7.4 \pm 1.4) \times 10^{-6}$	
Γ_{290}	$b_1^0 K^{*0},\ b_1^0 \to \omega\pi^0$		$< 8.0 \times 10^{-6}$	CL=90%
Γ_{291}	$b_1^- K^{*+},\ b_1^- \to \omega\pi^-$		$< 5.0 \times 10^{-6}$	CL=90%
Γ_{292}	$a_0(1450)^\pm K^\mp,\ a_0^\pm \to \eta\pi^\pm$		$< 3.1 \times 10^{-6}$	CL=90%
Γ_{293}	$K_S^0 X^0$ (Familon)		$< 5.3 \times 10^{-5}$	CL=90%
Γ_{294}	$\omega K^*(892)^0$		$(2.0 \pm 0.5) \times 10^{-6}$	
Γ_{295}	$\omega (K\pi)_0^{*0}$		$(1.84 \pm 0.25) \times 10^{-5}$	
Γ_{296}	$\omega K_0^*(1430)^0$		$(1.60 \pm 0.34) \times 10^{-5}$	
Γ_{297}	$\omega K_2^*(1430)^0$		$(1.01 \pm 0.23) \times 10^{-5}$	
Γ_{298}	$\omega K^+ \pi^-$ nonresonant		$(5.1 \pm 1.0) \times 10^{-6}$	
Γ_{299}	$K^+ \pi^- \pi^0$		$(3.78 \pm 0.32) \times 10^{-5}$	
Γ_{300}	$K^+ \rho^-$		$(7.0 \pm 0.9) \times 10^{-6}$	
Γ_{301}	$K^+ \rho(1450)^-$		$(2.4 \pm 1.2) \times 10^{-6}$	
Γ_{302}	$K^+ \rho(1700)^-$		$(6 \pm 7) \times 10^{-7}$	
Γ_{303}	$(K^+ \pi^- \pi^0)$ nonresonant		$(2.8 \pm 0.6) \times 10^{-6}$	
Γ_{304}	$(K\pi)_0^{*+} \pi^-,\ (K\pi)_0^{*+} \to K^+ \pi^0$		$(3.4 \pm 0.5) \times 10^{-5}$	
Γ_{305}	$(K\pi)_0^{*0} \pi^0,\ (K\pi)_0^{*0} \to K^+ \pi^-$		$(8.6 \pm 1.7) \times 10^{-6}$	
Γ_{306}	$K_2^*(1430)^0 \pi^0$		$< 4.0 \times 10^{-6}$	CL=90%
Γ_{307}	$K^*(1680)^0 \pi^0$		$< 7.5 \times 10^{-6}$	CL=90%
Γ_{308}	$K_x^{*0} \pi^0$	[d]	$(6.1 \pm 1.6) \times 10^{-6}$	
Γ_{309}	$K^0 \pi^+ \pi^-$		$(4.97 \pm 0.18) \times 10^{-5}$	
Γ_{310}	$K^0 \pi^+ \pi^-$ nonresonant		$(1.39 {}^{+0.26}_{-0.18}) \times 10^{-5}$	S=1.6
Γ_{311}	$K^0 \rho^0$		$(3.4 \pm 1.1) \times 10^{-6}$	S=2.3
Γ_{312}	$K^*(892)^+ \pi^-$		$(7.5 \pm 0.4) \times 10^{-6}$	
Γ_{313}	$K_0^*(1430)^+ \pi^-$		$(3.3 \pm 0.7) \times 10^{-5}$	S=2.0
Γ_{314}	$K_x^{*+} \pi^-$	[d]	$(5.1 \pm 1.6) \times 10^{-6}$	
Γ_{315}	$K^*(1410)^+ \pi^-,\ K^{*+} \to K^0 \pi^+$		$< 3.8 \times 10^{-6}$	CL=90%
Γ_{316}	$(K\pi)_0^{*+} \pi^-,\ (K\pi)_0^{*+} \to K^0 \pi^+$		$(1.62 \pm 0.13) \times 10^{-5}$	
Γ_{317}	$f_0(980) K^0,\ f_0 \to \pi^+ \pi^-$		$(8.1 \pm 0.8) \times 10^{-6}$	S=1.3
Γ_{318}	$K^0 f_0(500)$		$(1.6 {}^{+2.5}_{-1.6}) \times 10^{-7}$	
Γ_{319}	$K^0 f_0(1500)$		$(1.3 \pm 0.8) \times 10^{-6}$	
Γ_{320}	$f_2(1270) K^0$		$(2.7 {}^{+1.3}_{-1.2}) \times 10^{-6}$	
Γ_{321}	$f_x(1300) K0, f_x \to \pi^+ \pi^-$		$(1.8 \pm 0.7) \times 10^{-6}$	
Γ_{322}	$K^*(892)^0 \pi^0$		$(3.3 \pm 0.6) \times 10^{-6}$	
Γ_{323}	$K_2^*(1430)^+ \pi^-$		$(3.65 \pm 0.34) \times 10^{-6}$	
Γ_{324}	$K^*(1680)^+ \pi^-$		$(1.41 \pm 0.10) \times 10^{-5}$	

Γ_{325}	$K^+\pi^-\pi^+\pi^-$	[e]	$< 2.3 \times 10^{-4}$	CL=90%
Γ_{326}	$\rho^0 K^+\pi^-$		$(2.8 \pm 0.7) \times 10^{-6}$	
Γ_{327}	$f_0(980) K^+\pi^-,\ f_0 \to \pi\pi$		$(1.4 {}^{+0.5}_{-0.6}) \times 10^{-6}$	
Γ_{328}	$K^+\pi^-\pi^+\pi^-$ nonresonant		$< 2.1 \times 10^{-6}$	CL=90%
Γ_{329}	$K^*(892)^0\pi^+\pi^-$		$(5.5 \pm 0.5) \times 10^{-5}$	
Γ_{330}	$K^*(892)^0\rho^0$		$(3.9 \pm 1.3) \times 10^{-6}$	S=1.9
Γ_{331}	$K^*(892)^0 f_0(980),\ f_0 \to \pi\pi$		$(3.9 {}^{+2.1}_{-1.8}) \times 10^{-6}$	S=3.9
Γ_{332}	$K_1(1270)^+\pi^-$		$< 3.0 \times 10^{-5}$	CL=90%
Γ_{333}	$K_1(1400)^+\pi^-$		$< 2.7 \times 10^{-5}$	CL=90%
Γ_{334}	$a_1(1260)^- K^+$	[e]	$(1.6 \pm 0.4) \times 10^{-5}$	
Γ_{335}	$K^*(892)^+\rho^-$		$(1.03 \pm 0.26) \times 10^{-5}$	
Γ_{336}	$K_0^*(1430)^+\rho^-$		$(2.8 \pm 1.2) \times 10^{-5}$	
Γ_{337}	$K_1(1400)^0\rho^0$		$< 3.0 \times 10^{-3}$	CL=90%
Γ_{338}	$K_0^*(1430)^0\rho^0$		$(2.7 \pm 0.6) \times 10^{-5}$	
Γ_{339}	$K_0^*(1430)^0 f_0(980),\ f_0 \to \pi\pi$		$(2.7 \pm 0.9) \times 10^{-6}$	
Γ_{340}	$K_2^*(1430)^0 f_0(980),\ f_0 \to \pi\pi$		$(8.6 \pm 2.0) \times 10^{-6}$	
Γ_{341}	K^+K^-		$(7.8 \pm 1.5) \times 10^{-8}$	
Γ_{342}	$K^0\overline{K}^0$		$(1.21 \pm 0.16) \times 10^{-6}$	
Γ_{343}	$K^0K^-\pi^+$		$(6.7 \pm 0.5) \times 10^{-6}$	
Γ_{344}	$K^*(892)^\pm K^\mp$		$< 4 \times 10^{-7}$	CL=90%
Γ_{345}	$\overline{K}^{*0}K^0 + K^{*0}\overline{K}^0$		$< 9.6 \times 10^{-7}$	CL=90%
Γ_{346}	$K^+K^-\pi^0$		$(2.2 \pm 0.6) \times 10^{-6}$	
Γ_{347}	$K_S^0K_S^0\pi^0$		$< 9 \times 10^{-7}$	CL=90%
Γ_{348}	$K_S^0K_S^0\eta$		$< 1.0 \times 10^{-6}$	CL=90%
Γ_{349}	$K_S^0K_S^0\eta'$		$< 2.0 \times 10^{-6}$	CL=90%
Γ_{350}	$K^0K^+K^-$		$(2.68 \pm 0.11) \times 10^{-5}$	
Γ_{351}	$K^0\phi$		$(7.3 \pm 0.7) \times 10^{-6}$	
Γ_{352}	$f_0(980) K^0,\ f_0 \to K^+K^-$		$(7.0 {}^{+3.5}_{-3.0}) \times 10^{-6}$	
Γ_{353}	$f_0(1500) K^0$		$(1.3 {}^{+0.7}_{-0.5}) \times 10^{-5}$	
Γ_{354}	$f_2'(1525)^0 K^0$		$(3 {}^{+5}_{-4}) \times 10^{-7}$	
Γ_{355}	$f_0(1710) K^0,\ f_0 \to K^+K^-$		$(4.4 \pm 0.9) \times 10^{-6}$	
Γ_{356}	$K^0K^+K^-$ nonresonant		$(3.3 \pm 1.0) \times 10^{-5}$	
Γ_{357}	$K_S^0K_S^0K_S^0$		$(6.0 \pm 0.5) \times 10^{-6}$	S=1.1
Γ_{358}	$f_0(980) K^0,\ f_0 \to K_S^0K_S^0$		$(2.7 \pm 1.8) \times 10^{-6}$	
Γ_{359}	$f_0(1710) K^0,\ f_0 \to K_S^0K_S^0$		$(5.0 {}^{+5.0}_{-2.6}) \times 10^{-7}$	
Γ_{360}	$f_2(2010) K^0,\ f_2 \to K_S^0K_S^0$		$(5 \pm 6) \times 10^{-7}$	
Γ_{361}	$K_S^0K_S^0K_S^0$ nonresonant		$(1.33 \pm 0.31) \times 10^{-5}$	
Γ_{362}	$K_S^0K_S^0K_L^0$		$< 1.6 \times 10^{-5}$	CL=90%
Γ_{363}	$K^*(892)^0K^+K^-$		$(2.75 \pm 0.26) \times 10^{-5}$	

Γ_{364}	$K^*(892)^0 \phi$		$(1.00 \pm 0.05) \times 10^{-5}$	
Γ_{365}	$K^+ K^- \pi^+ \pi^-$ nonresonant		$< 7.17 \times 10^{-5}$	CL=90%
Γ_{366}	$K^*(892)^0 K^- \pi^+$		$(4.5 \pm 1.3) \times 10^{-6}$	
Γ_{367}	$K^*(892)^0 \overline{K}^*(892)^0$		$(8.3 \pm 2.4) \times 10^{-7}$	S=1.5
Γ_{368}	$K^+ K^+ \pi^- \pi^-$ nonresonant		$< 6.0 \times 10^{-6}$	CL=90%
Γ_{369}	$K^*(892)^0 K^+ \pi^-$		$< 2.2 \times 10^{-6}$	CL=90%
Γ_{370}	$K^*(892)^0 K^*(892)^0$		$< 2 \times 10^{-7}$	CL=90%
Γ_{371}	$K^*(892)^+ K^*(892)^-$		$< 2.0 \times 10^{-6}$	CL=90%
Γ_{372}	$K_1(1400)^0 \phi$		$< 5.0 \times 10^{-3}$	CL=90%
Γ_{373}	$\phi (K\pi)^{*0}_0$		$(4.3 \pm 0.4) \times 10^{-6}$	
Γ_{374}	$\phi (K\pi)^{*0}_0$ $(1.60 < m_{K\pi} < 2.15)$	[f]	$< 1.7 \times 10^{-6}$	CL=90%
Γ_{375}	$K^*_0(1430)^0 K^- \pi^+$		$< 3.18 \times 10^{-5}$	CL=90%
Γ_{376}	$K^*_0(1430)^0 \overline{K}^*(892)^0$		$< 3.3 \times 10^{-6}$	CL=90%
Γ_{377}	$K^*_0(1430)^0 \overline{K}^*_0(1430)^0$		$< 8.4 \times 10^{-6}$	CL=90%
Γ_{378}	$K^*_0(1430)^0 \phi$		$(3.9 \pm 0.8) \times 10^{-6}$	
Γ_{379}	$K^*_0(1430)^0 K^*(892)^0$		$< 1.7 \times 10^{-6}$	CL=90%
Γ_{380}	$K^*_0(1430)^0 K^*_0(1430)^0$		$< 4.7 \times 10^{-6}$	CL=90%
Γ_{381}	$K^*(1680)^0 \phi$		$< 3.5 \times 10^{-6}$	CL=90%
Γ_{382}	$K^*(1780)^0 \phi$		$< 2.7 \times 10^{-6}$	CL=90%
Γ_{383}	$K^*(2045)^0 \phi$		$< 1.53 \times 10^{-5}$	CL=90%
Γ_{384}	$K^*_2(1430)^0 \rho^0$		$< 1.1 \times 10^{-3}$	CL=90%
Γ_{385}	$K^*_2(1430)^0 \phi$		$(6.8 \pm 0.9) \times 10^{-6}$	S=1.2
Γ_{386}	$K^0 \phi \phi$		$(3.7 \pm 0.7) \times 10^{-6}$	S=1.3
Γ_{387}	$\eta' \eta' K^0$		$< 3.1 \times 10^{-5}$	CL=90%
Γ_{388}	$\eta K^0 \gamma$		$(7.6 \pm 1.8) \times 10^{-6}$	
Γ_{389}	$\eta' K^0 \gamma$		$< 6.4 \times 10^{-6}$	CL=90%
Γ_{390}	$K^0 \phi \gamma$		$(2.7 \pm 0.7) \times 10^{-6}$	
Γ_{391}	$K^+ \pi^- \gamma$		$(4.6 \pm 1.4) \times 10^{-6}$	
Γ_{392}	$K^*(892)^0 \gamma$		$(4.18 \pm 0.25) \times 10^{-5}$	S=2.1
Γ_{393}	$K^*(1410) \gamma$		$< 1.3 \times 10^{-4}$	CL=90%
Γ_{394}	$K^+ \pi^- \gamma$ nonresonant		$< 2.6 \times 10^{-6}$	CL=90%
Γ_{395}	$K^*(892)^0 X(214)$, $X \to \mu^+ \mu^-$	[g]	$< 2.26 \times 10^{-8}$	CL=90%
Γ_{396}	$K^0 \pi^+ \pi^- \gamma$		$(1.99 \pm 0.18) \times 10^{-5}$	
Γ_{397}	$K^+ \pi^- \pi^0 \gamma$		$(4.1 \pm 0.4) \times 10^{-5}$	
Γ_{398}	$K_1(1270)^0 \gamma$		$< 5.8 \times 10^{-5}$	CL=90%
Γ_{399}	$K_1(1400)^0 \gamma$		$< 1.2 \times 10^{-5}$	CL=90%
Γ_{400}	$K^*_2(1430)^0 \gamma$		$(1.24 \pm 0.24) \times 10^{-5}$	
Γ_{401}	$K^*(1680)^0 \gamma$		$< 2.0 \times 10^{-3}$	CL=90%
Γ_{402}	$K^*_3(1780)^0 \gamma$		$< 8.3 \times 10^{-5}$	CL=90%
Γ_{403}	$K^*_4(2045)^0 \gamma$		$< 4.3 \times 10^{-3}$	CL=90%

Light unflavored meson modes

Γ_{404}	$\rho^0 \gamma$		$(8.6 \pm 1.5) \times 10^{-7}$	
Γ_{405}	$\rho^0 X(214)$, $X \to \mu^+ \mu^-$	[*g*]	$< 1.73 \times 10^{-8}$	CL=90%
Γ_{406}	$\omega \gamma$		$(4.4 {}^{+1.8}_{-1.6}) \times 10^{-7}$	
Γ_{407}	$\phi \gamma$		$< 1.0 \times 10^{-7}$	CL=90%
Γ_{408}	$f_2(1270)\gamma$, $f_2 \to (KS)^0 (KS)^0$		$< 3.1 \times 10^{-7}$	
Γ_{409}	$f'_2(1525)\gamma$, $f'_2 \to (KS)^0 (KS)^0$		$< 2.1 \times 10^{-7}$	
Γ_{410}	$\pi^+ \pi^-$		$(5.12 \pm 0.19) \times 10^{-6}$	
Γ_{411}	$\pi^0 \pi^0$		$(1.59 \pm 0.26) \times 10^{-6}$	S=1.4
Γ_{412}	$\eta \pi^0$		$(4.1 \pm 1.7) \times 10^{-7}$	
Γ_{413}	$\eta \eta$		$< 1.0 \times 10^{-6}$	CL=90%
Γ_{414}	$\eta' \pi^0$		$(1.2 \pm 0.6) \times 10^{-6}$	S=1.7
Γ_{415}	$\eta' \eta'$		$< 1.7 \times 10^{-6}$	CL=90%
Γ_{416}	$\eta' \eta$		$< 1.2 \times 10^{-6}$	CL=90%
Γ_{417}	$\eta' \rho^0$		$< 1.3 \times 10^{-6}$	CL=90%
Γ_{418}	$\eta' f_0(980)$, $f_0 \to \pi^+ \pi^-$		$< 9 \times 10^{-7}$	CL=90%
Γ_{419}	$\eta \rho^0$		$< 1.5 \times 10^{-6}$	CL=90%
Γ_{420}	$\eta f_0(980)$, $f_0 \to \pi^+ \pi^-$		$< 4 \times 10^{-7}$	CL=90%
Γ_{421}	$\omega \eta$		$(9.4 {}^{+4.0}_{-3.1}) \times 10^{-7}$	
Γ_{422}	$\omega \eta'$		$(1.0 {}^{+0.5}_{-0.4}) \times 10^{-6}$	
Γ_{423}	$\omega \rho^0$		$< 1.6 \times 10^{-6}$	CL=90%
Γ_{424}	$\omega f_0(980)$, $f_0 \to \pi^+ \pi^-$		$< 1.5 \times 10^{-6}$	CL=90%
Γ_{425}	$\omega \omega$		$(1.2 \pm 0.4) \times 10^{-6}$	
Γ_{426}	$\phi \pi^0$		$< 1.5 \times 10^{-7}$	CL=90%
Γ_{427}	$\phi \eta$		$< 5 \times 10^{-7}$	CL=90%
Γ_{428}	$\phi \eta'$		$< 5 \times 10^{-7}$	CL=90%
Γ_{429}	$\phi \pi^+ \pi^-$		$(1.8 \pm 0.5) \times 10^{-7}$	
Γ_{430}	$\phi \rho^0$		$< 3.3 \times 10^{-7}$	CL=90%
Γ_{431}	$\phi f_0(980)$, $f_0 \to \pi^+ \pi^-$		$< 3.8 \times 10^{-7}$	CL=90%
Γ_{432}	$\phi \omega$		$< 7 \times 10^{-7}$	CL=90%
Γ_{433}	$\phi \phi$		$< 2.7 \times 10^{-8}$	CL=90%
Γ_{434}	$a_0(980)^\pm \pi^\mp$, $a_0^\pm \to \eta \pi^\pm$		$< 3.1 \times 10^{-6}$	CL=90%
Γ_{435}	$a_0(1450)^\pm \pi^\mp$, $a_0^\pm \to \eta \pi^\pm$		$< 2.3 \times 10^{-6}$	CL=90%
Γ_{436}	$\pi^+ \pi^- \pi^0$		$< 7.2 \times 10^{-4}$	CL=90%
Γ_{437}	$\rho^0 \pi^0$		$(2.0 \pm 0.5) \times 10^{-6}$	
Γ_{438}	$\rho^\mp \pi^\pm$	[*h*]	$(2.30 \pm 0.23) \times 10^{-5}$	
Γ_{439}	$\pi^+ \pi^- \pi^+ \pi^-$		$< 1.12 \times 10^{-5}$	CL=90%
Γ_{440}	$\rho^0 \pi^+ \pi^-$		$< 8.8 \times 10^{-6}$	CL=90%
Γ_{441}	$\rho^0 \rho^0$		$(9.6 \pm 1.5) \times 10^{-7}$	
Γ_{442}	$f_0(980) \pi^+ \pi^-$, $f_0 \to \pi^+ \pi^-$		$< 3.0 \times 10^{-6}$	CL=90%

Γ_{443}	$\rho^0 f_0(980)$, $f_0 \to \pi^+\pi^-$		$(7.8 \pm 2.5) \times 10^{-7}$	
Γ_{444}	$f_0(980) f_0(980)$, $f_0 \to \pi^+\pi^-$, $f_0 \to \pi^+\pi^-$		$< 1.9 \times 10^{-7}$	CL=90%
Γ_{445}	$f_0(980) f_0(980)$, $f_0 \to \pi^+\pi^-$, $f_0 \to K^+K^-$		$< 2.3 \times 10^{-7}$	CL=90%
Γ_{446}	$a_1(1260)^\mp \pi^\pm$	[h]	$(2.6 \pm 0.5) \times 10^{-5}$	S=1.9
Γ_{447}	$a_2(1320)^\mp \pi^\pm$	[h]	$< 6.3 \times 10^{-6}$	CL=90%
Γ_{448}	$\pi^+\pi^-\pi^0\pi^0$		$< 3.1 \times 10^{-3}$	CL=90%
Γ_{449}	$\rho^+\rho^-$		$(2.77 \pm 0.19) \times 10^{-5}$	
Γ_{450}	$a_1(1260)^0 \pi^0$		$< 1.1 \times 10^{-3}$	CL=90%
Γ_{451}	$\omega \pi^0$		$< 5 \times 10^{-7}$	CL=90%
Γ_{452}	$\pi^+\pi^+\pi^-\pi^-\pi^0$		$< 9.0 \times 10^{-3}$	CL=90%
Γ_{453}	$a_1(1260)^+ \rho^-$		$< 6.1 \times 10^{-5}$	CL=90%
Γ_{454}	$a_1(1260)^0 \rho^0$		$< 2.4 \times 10^{-3}$	CL=90%
Γ_{455}	$b_1^\mp \pi^\pm$, $b_1^\mp \to \omega \pi^\mp$		$(1.09 \pm 0.15) \times 10^{-5}$	
Γ_{456}	$b_1^0 \pi^0$, $b_1^0 \to \omega \pi^0$		$< 1.9 \times 10^{-6}$	CL=90%
Γ_{457}	$b_1^- \rho^+$, $b_1^- \to \omega \pi^-$		$< 1.4 \times 10^{-6}$	CL=90%
Γ_{458}	$b_1^0 \rho^0$, $b_1^0 \to \omega \pi^0$		$< 3.4 \times 10^{-6}$	CL=90%
Γ_{459}	$\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$		$< 3.0 \times 10^{-3}$	CL=90%
Γ_{460}	$a_1(1260)^+ a_1(1260)^-$, $a_1^+ \to 2\pi^+\pi^-$, $a_1^- \to 2\pi^-\pi^+$		$(1.18 \pm 0.31) \times 10^{-5}$	
Γ_{461}	$\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$		< 1.1 %	CL=90%

Baryon modes

Γ_{462}	$p\overline{p}$		$(1.25 \pm 0.32) \times 10^{-8}$	
Γ_{463}	$p\overline{p}\pi^+\pi^-$		$(2.87 \pm 0.19) \times 10^{-6}$	
Γ_{464}	$p\overline{p}K^+\pi^-$		$(6.3 \pm 0.5) \times 10^{-6}$	
Γ_{465}	$p\overline{p}K^0$		$(2.66 \pm 0.32) \times 10^{-6}$	
Γ_{466}	$\Theta(1540)^+ \overline{p}$, $\Theta^+ \to p K_S^0$	[i]	$< 5 \times 10^{-8}$	CL=90%
Γ_{467}	$f_J(2220) K^0$, $f_J \to p\overline{p}$		$< 4.5 \times 10^{-7}$	CL=90%
Γ_{468}	$p\overline{p}K^*(892)^0$		$(1.24^{+0.28}_{-0.25}) \times 10^{-6}$	
Γ_{469}	$f_J(2220) K_0^*$, $f_J \to p\overline{p}$		$< 1.5 \times 10^{-7}$	CL=90%
Γ_{470}	$p\overline{p}K^+K^-$		$(1.21 \pm 0.32) \times 10^{-7}$	
Γ_{471}	$p\overline{p}\pi^0$		$(5.0 \pm 1.9) \times 10^{-7}$	
Γ_{472}	$pp\overline{p}\overline{p}$		$< 2.0 \times 10^{-7}$	CL=90%
Γ_{473}	$p\overline{\Lambda}\pi^-$		$(3.14 \pm 0.29) \times 10^{-6}$	
Γ_{474}	$p\overline{\Lambda}\pi^-\gamma$		$< 6.5 \times 10^{-7}$	CL=90%
Γ_{475}	$p\overline{\Sigma}(1385)^-$		$< 2.6 \times 10^{-7}$	CL=90%
Γ_{476}	$\Delta(1232)^+ \overline{p} + \Delta(1232)^- p$		$< 1.6 \times 10^{-6}$	
Γ_{477}	$\Delta^0 \overline{\Lambda}$		$< 9.3 \times 10^{-7}$	CL=90%
Γ_{478}	$p\overline{\Lambda}K^-$		$< 8.2 \times 10^{-7}$	CL=90%
Γ_{479}	$p\overline{\Lambda}D^-$		$(2.5 \pm 0.4) \times 10^{-5}$	
Γ_{480}	$p\overline{\Lambda}D^{*-}$		$(3.4 \pm 0.8) \times 10^{-5}$	

Γ_{481}	$p\overline{\Sigma}^0\pi^-$	$< 3.8 \times 10^{-6}$	CL=90%
Γ_{482}	$\overline{\Lambda}\Lambda$	$< 3.2 \times 10^{-7}$	CL=90%
Γ_{483}	$\overline{\Lambda}\Lambda K^0$	$(4.8 ^{+1.0}_{-0.9}) \times 10^{-6}$	
Γ_{484}	$\overline{\Lambda}\Lambda K^{*0}$	$(2.5 ^{+0.9}_{-0.8}) \times 10^{-6}$	
Γ_{485}	$\overline{\Lambda}\Lambda D^0$	$(1.00 ^{+0.30}_{-0.26}) \times 10^{-5}$	
Γ_{486}	$D^0\Sigma^0\overline{\Lambda}$+ c.c.	$< 3.1 \times 10^{-5}$	CL=90%
Γ_{487}	$\Delta^0\overline{\Delta}^0$	$< 1.5 \times 10^{-3}$	CL=90%
Γ_{488}	$\Delta^{++}\overline{\Delta}^{--}$	$< 1.1 \times 10^{-4}$	CL=90%
Γ_{489}	$\overline{D}^0 p\overline{p}$	$(1.04 \pm 0.07) \times 10^{-4}$	
Γ_{490}	$D_s^-\overline{\Lambda}p$	$(2.8 \pm 0.9) \times 10^{-5}$	
Γ_{491}	$\overline{D}^*(2007)^0 p\overline{p}$	$(9.9 \pm 1.1) \times 10^{-5}$	
Γ_{492}	$D^*(2010)^- p\overline{n}$	$(1.4 \pm 0.4) \times 10^{-3}$	
Γ_{493}	$D^- p\overline{p}\pi^+$	$(3.32 \pm 0.31) \times 10^{-4}$	
Γ_{494}	$D^*(2010)^- p\overline{p}\pi^+$	$(4.7 \pm 0.5) \times 10^{-4}$	S=1.2
Γ_{495}	$\overline{D}^0 p\overline{p}\pi^+\pi^-$	$(3.0 \pm 0.5) \times 10^{-4}$	
Γ_{496}	$\overline{D}^{*0} p\overline{p}\pi^+\pi^-$	$(1.9 \pm 0.5) \times 10^{-4}$	
Γ_{497}	$\Theta_c\overline{p}\pi^+$, $\Theta_c \to D^- p$	$< 9 \times 10^{-6}$	CL=90%
Γ_{498}	$\Theta_c\overline{p}\pi^+$, $\Theta_c \to D^{*-} p$	$< 1.4 \times 10^{-5}$	CL=90%
Γ_{499}	$\overline{\Sigma}_c^{--}\Delta^{++}$	$< 8 \times 10^{-4}$	CL=90%
Γ_{500}	$\overline{\Lambda}_c^- p\pi^+\pi^-$	$(1.02 \pm 0.14) \times 10^{-3}$	S=1.3
Γ_{501}	$\overline{\Lambda}_c^- p$	$(1.54 \pm 0.18) \times 10^{-5}$	
Γ_{502}	$\overline{\Lambda}_c^- p\pi^0$	$(1.55 \pm 0.18) \times 10^{-4}$	
Γ_{503}	$\Sigma_c(2455)^- p$	$< 2.4 \times 10^{-5}$	
Γ_{504}	$\overline{\Lambda}_c^- p\pi^+\pi^-\pi^0$	$< 5.07 \times 10^{-3}$	CL=90%
Γ_{505}	$\overline{\Lambda}_c^- p\pi^+\pi^-\pi^+\pi^-$	$< 2.74 \times 10^{-3}$	CL=90%
Γ_{506}	$\overline{\Lambda}_c^- p\pi^+\pi^-$ (nonresonant)	$(5.5 \pm 1.0) \times 10^{-4}$	S=1.3
Γ_{507}	$\overline{\Sigma}_c(2520)^{--} p\pi^+$	$(1.02 \pm 0.18) \times 10^{-4}$	
Γ_{508}	$\overline{\Sigma}_c(2520)^0 p\pi^-$	$< 3.1 \times 10^{-5}$	CL=90%
Γ_{509}	$\overline{\Sigma}_c(2455)^0 p\pi^-$	$(1.08 \pm 0.16) \times 10^{-4}$	
Γ_{510}	$\overline{\Sigma}_c(2455)^0 N^0$, $N^0 \to p\pi^-$	$(6.4 \pm 1.7) \times 10^{-5}$	
Γ_{511}	$\overline{\Sigma}_c(2455)^{--} p\pi^+$	$(1.84 \pm 0.24) \times 10^{-4}$	
Γ_{512}	$\Lambda_c^- pK^+\pi^-$	$(3.5 \pm 0.7) \times 10^{-5}$	
Γ_{513}	$\overline{\Sigma}_c(2455)^{--} pK^+$, $\overline{\Sigma}_c^{--} \to \overline{\Lambda}_c^-\pi^-$	$(8.9 \pm 2.5) \times 10^{-6}$	
Γ_{514}	$\Lambda_c^- pK^*(892)^0$	$< 2.42 \times 10^{-5}$	CL=90%
Γ_{515}	$\Lambda_c^- pK^+K^-$	$(2.0 \pm 0.4) \times 10^{-5}$	
Γ_{516}	$\Lambda_c^- p\phi$	$< 1.0 \times 10^{-5}$	CL=90%
Γ_{517}	$\Lambda_c^- p\overline{p}p$	$< 2.8 \times 10^{-6}$	
Γ_{518}	$\overline{\Lambda}_c^-\Lambda K^+$	$(4.8 \pm 1.1) \times 10^{-5}$	

Γ_{519}	$\overline{\Lambda}_c^- \Lambda_c^+$			$< 1.6 \times 10^{-5}$	CL=95%
Γ_{520}	$\overline{\Lambda}_c(2593)^- \ / \ \overline{\Lambda}_c(2625)^- p$			$< 1.1 \times 10^{-4}$	CL=90%
Γ_{521}	$\overline{\Xi}_c^- \Lambda_c^+$			$(1.2 \pm 0.8) \times 10^{-3}$	
Γ_{522}	$\overline{\Xi}_c^- \Lambda_c^+,\ \overline{\Xi}_c^- \to \overline{\Xi}^+ \pi^- \pi^-$			$(2.4 \pm 1.1) \times 10^{-5}$	S=1.8
Γ_{523}	$\overline{\Xi}_c^- \Lambda_c^+,\ \overline{\Xi}_c^- \to \overline{p} K^+ \pi^-$			$(5.3 \pm 1.7) \times 10^{-6}$	
Γ_{524}	$\Lambda_c^+ \Lambda_c^- K^0$			$(4.0 \pm 0.9) \times 10^{-4}$	
Γ_{525}	$\overline{\Xi}_c(2930)^- \Lambda_c^+,\ \overline{\Xi}_c^- \to \Lambda_c^- K^0$			$(2.4 \pm 0.6) \times 10^{-4}$	
Γ_{526}	$\Lambda \psi_{DS}$		[j]	$< 2.1 \times 10^{-5}$	CL=90%

Lepton Family number (*LF*) or Lepton number (*L*) or Baryon number (*B*) violating modes, or/and $\Delta B = 1$ weak neutral current (*B1*) modes

Γ_{527}	$\gamma\gamma$	*B1*		$< 3.2 \times 10^{-7}$	CL=90%
Γ_{528}	$e^+ e^-$	*B1*		$< 2.5 \times 10^{-9}$	CL=90%
Γ_{529}	$e^+ e^- \gamma$	*B1*		$< 1.2 \times 10^{-7}$	CL=90%
Γ_{530}	$\mu^+ \mu^-$	*B1*		$(7 \ {}^{+13}_{-11}) \times 10^{-11}$	S=1.8
Γ_{531}	$\mu^+ \mu^- \gamma$	*B1*			
Γ_{532}	$\mu^+ \mu^- \mu^+ \mu^-$	*B1*		$< 1.8 \times 10^{-10}$	CL=95%
Γ_{533}	$S P,\ S \to \mu^+ \mu^-,\ P \to \mu^+ \mu^-$	*B1*	[k]	$< 6.0 \times 10^{-10}$	CL=95%
Γ_{534}	$a a,\ a \to \mu^+ \mu^-$			$< 2.3 \times 10^{-10}$	CL=95%
Γ_{535}	$\tau^+ \tau^-$	*B1*		$< 2.1 \times 10^{-3}$	CL=95%
Γ_{536}	$\pi^0 \ell^+ \ell^-$	*B1*		$< 5.3 \times 10^{-8}$	CL=90%
Γ_{537}	$\pi^0 e^+ e^-$	*B1*		$< 8.4 \times 10^{-8}$	CL=90%
Γ_{538}	$\pi^0 \mu^+ \mu^-$	*B1*		$< 6.9 \times 10^{-8}$	CL=90%
Γ_{539}	$\eta \ell^+ \ell^-$	*B1*		$< 6.4 \times 10^{-8}$	CL=90%
Γ_{540}	$\eta e^+ e^-$	*B1*		$< 1.08 \times 10^{-7}$	CL=90%
Γ_{541}	$\eta \mu^+ \mu^-$	*B1*		$< 1.12 \times 10^{-7}$	CL=90%
Γ_{542}	$\pi^0 \nu \overline{\nu}$	*B1*		$< 9 \times 10^{-6}$	CL=90%
Γ_{543}	$K^0 \ell^+ \ell^-$	*B1*	[a]	$(3.3 \pm 0.6) \times 10^{-7}$	
Γ_{544}	$K^0 e^+ e^-$	*B1*		$(2.5 \ {}^{+1.1}_{-0.9}) \times 10^{-7}$	S=1.3
Γ_{545}	$K^0 \mu^+ \mu^-$	*B1*		$(3.39 \pm 0.35) \times 10^{-7}$	S=1.1
Γ_{546}	$K^0 \nu \overline{\nu}$	*B1*		$< 2.6 \times 10^{-5}$	CL=90%
Γ_{547}	$\rho^0 \nu \overline{\nu}$	*B1*		$< 4.0 \times 10^{-5}$	CL=90%
Γ_{548}	$K^*(892)^0 \ell^+ \ell^-$	*B1*	[a]	$(9.9 \ {}^{+1.2}_{-1.1}) \times 10^{-7}$	
Γ_{549}	$K^*(892)^0 e^+ e^-$	*B1*		$(1.03 \ {}^{+0.19}_{-0.17}) \times 10^{-6}$	
Γ_{550}	$K^*(892)^0 \mu^+ \mu^-$	*B1*		$(9.4 \pm 0.5) \times 10^{-7}$	
Γ_{551}	$K^*(892)^0 \chi,\ \chi \to \mu^+ \mu^-$				
Γ_{552}	$\pi^+ \pi^- \mu^+ \mu^-$	*B1*		$(2.1 \pm 0.5) \times 10^{-8}$	
Γ_{553}	$K^*(892)^0 \nu \overline{\nu}$	*B1*		$< 1.8 \times 10^{-5}$	CL=90%
Γ_{554}	invisible	*B1*		$< 2.4 \times 10^{-5}$	CL=90%

Γ_{555}	$\nu\overline{\nu}\gamma$	*B1*		<	1.6	$\times 10^{-5}$	CL=90%
Γ_{556}	$\phi\mu^+\mu^-$			<	3.2	$\times 10^{-9}$	CL=90%
Γ_{557}	$\phi\nu\overline{\nu}$	*B1*		<	1.27	$\times 10^{-4}$	CL=90%
Γ_{558}	$e^\pm\mu^\mp$	*LF*	[h]	<	1.0	$\times 10^{-9}$	CL=90%
Γ_{559}	$\pi^0 e^\pm\mu^\mp$	*LF*		<	1.4	$\times 10^{-7}$	CL=90%
Γ_{560}	$K^0 e^\pm\mu^\mp$	*LF*		<	3.8	$\times 10^{-8}$	CL=90%
Γ_{561}	$K^*(892)^0 e^+\mu^-$	*LF*		<	1.6	$\times 10^{-7}$	CL=90%
Γ_{562}	$K^*(892)^0 e^-\mu^+$	*LF*		<	1.2	$\times 10^{-7}$	CL=90%
Γ_{563}	$K^*(892)^0 e^\pm\mu^\mp$	*LF*		<	1.8	$\times 10^{-7}$	CL=90%
Γ_{564}	$e^\pm\tau^\mp$	*LF*	[h]	<	1.6	$\times 10^{-5}$	CL=90%
Γ_{565}	$\mu^\pm\tau^\mp$	*LF*	[h]	<	1.4	$\times 10^{-5}$	CL=95%
Γ_{566}	$\Lambda_c^+\mu^-$	*L,B*		<	1.4	$\times 10^{-6}$	CL=90%
Γ_{567}	$\Lambda_c^+ e^-$	*L,B*		<	4	$\times 10^{-6}$	CL=90%

[a] An ℓ indicates an e or a μ mode, not a sum over these modes.

[b] $\overline{D}^{**}$ represents an excited state with mass $2.2 < \mathrm{M} < 2.8$ GeV/c^2.

[c] $\chi_{c1}(3872)^+$ is a hypothetical charged partner of the $\chi_{c1}(3872)$.

[d] Stands for the possible candidates of $K^*(1410)$, $K_0^*(1430)$ and $K_2^*(1430)$.

[e] B^0 and B_s^0 contributions not separated. Limit is on weighted average of the two decay rates.

[f] This decay refers to the coherent sum of resonant and nonresonant $J^P = 0^+$ $K\pi$ components with $1.60 < m_{K\pi} < 2.15$ GeV/c^2.

[g] $X(214)$ is a hypothetical particle of mass 214 MeV/c^2 reported by the HyperCP experiment, Physical Review Letters **94** 021801 (2005)

[h] The value is for the sum of the charge states or particle/antiparticle states indicated.

[i] $\Theta(1540)^+$ denotes a possible narrow pentaquark state.

[j] ψ_{DS} is a GeV-scale dark sector antibaryon (mass range 1–3.9 GeV/c^2).

[k] Here S and P are the hypothetical scalar and pseudoscalar particles with masses of 2.5 GeV/c^2 and 214.3 MeV/c^2, respectively.

CONSTRAINED FIT INFORMATION

An overall fit to 36 branching ratios uses 93 measurements and one constraint to determine 23 parameters. The overall fit has a $\chi^2 = 63.5$ for 71 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients $\left\langle\delta x_i\delta x_j\right\rangle/(\delta x_i\cdot\delta x_j)$, in percent, from the fit to the branching fractions, $x_i \equiv \Gamma_i/\Gamma_{\text{total}}$. The fit constrains the x_i whose labels appear in this array to sum to one.

x_{8}	40									
x_{35}	0	0								
x_{47}	0	0	28							
x_{73}	0	0	4	13						
x_{114}	0	0	19	6	1					
x_{124}	0	0	7	2	0	1				
x_{201}	0	0	0	0	0	0	0			
x_{203}	0	0	0	0	0	0	0	0		
x_{251}	0	0	0	0	0	0	0	0	0	
x_{257}	0	0	0	0	0	0	0	0	0	19
x_{263}	0	0	0	0	0	0	0	0	29	0
x_{269}	0	0	0	0	0	0	0	0	6	0
x_{275}	0	0	0	0	0	0	0	0	0	0
x_{309}	0	0	0	0	0	0	0	0	0	0
x_{343}	0	0	0	0	0	0	0	0	0	0
x_{350}	0	0	0	0	0	0	0	0	0	0
x_{364}	0	0	0	0	0	0	0	0	0	0
x_{410}	0	0	0	0	0	0	0	0	0	0
x_{441}	0	0	0	0	0	0	0	0	0	0
x_{545}	0	0	0	0	0	0	0	0	0	0
x_{550}	0	0	0	0	0	0	0	0	15	0
	x_{7}	x_{8}	x_{35}	x_{47}	x_{73}	x_{114}	x_{124}	x_{201}	x_{203}	x_{251}

x_{263}	0									
x_{269}	0	22								
x_{275}	0	0	0							
x_{309}	0	0	0	0						
x_{343}	0	0	0	0	16					
x_{350}	0	0	0	0	27	4				
x_{364}	0	0	0	0	0	0	0			
x_{410}	0	0	0	27	0	0	0	0		
x_{441}	0	0	0	0	0	0	0	20	0	
x_{545}	0	0	0	0	0	0	0	0	0	0
x_{550}	0	4	1	0	0	0	0	0	0	0
	x_{257}	x_{263}	x_{269}	x_{275}	x_{309}	x_{343}	x_{350}	x_{364}	x_{410}	x_{441}

x_{550}	0
	x_{545}

B^0 BRANCHING RATIOS

For branching ratios in which the charge of the decaying B is not determined, see the $B^{\pm}$ section.

$\Gamma(\ell^+ \nu_\ell X)/\Gamma_{\text{total}}$ Γ_1/Γ

"OUR EVALUATION" is an average using rescaled values of the data listed below. The average and rescaling were performed by the Heavy Flavor Averaging Group (HFLAV) and are described at https://hflav.web.cern.ch/. The averaging/rescaling procedure takes into account correlations between the measurements.

VALUE (units 10^{-2})	*DOCUMENT ID*		*TECN*	*COMMENT*
10.33±0.28 OUR EVALUATION				
10.14±0.30 OUR AVERAGE	Error includes scale factor of 1.1.			
10.46±0.30±0.23	[1] URQUIJO	07	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
9.64±0.27±0.33	[2] AUBERT,B	06Y	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
10.78±0.60±0.69	[3] ARTUSO	97	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
9.3 ±1.1 ±1.5	ALBRECHT	94	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$
9.9 ±3.0 ±0.9	HENDERSON	92	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
10.32±0.36±0.35	[4] OKABE	05	BELL	Repl. by URQUIJO 07
10.9 ±0.7 ±1.1	ATHANAS	94	CLE2	Sup. by ARTUSO 97

[1] URQUIJO 07 report a measurement of (9.80 ± 0.29 ± 0.21)% for the partial branching fraction of $B \rightarrow e \nu_e X_c$ decay with electron energy above 0.6 GeV. We converted the result to $B \rightarrow e \nu_e X$ branching fraction.

[2] The measurements are obtained for charged and neutral B mesons partial rates of semileptonic decay to electrons with momentum above 0.6 GeV/c in the B rest frame. The best precision on the ratio is achieved for a momentum threshold of 1.0 GeV: B($B^+ \rightarrow e^+ \nu_e X$) / B($B^0 \rightarrow e^+ \nu_e X$) = 1.074 ± 0.041 ± 0.026.

[3] ARTUSO 97 uses partial reconstruction of $B \rightarrow D^* \ell \nu_\ell$ and inclusive semileptonic branching ratio from BARISH 96B (0.1049 ± 0.0017 ± 0.0043).

[4] The measurements are obtained for charged and neutral B mesons partial rates of semileptonic decay to electrons with momentum above 0.6 GeV/c in the B rest frame, and their ratio of B($B^+ \rightarrow e^+ \nu_e X$)/B($B^0 \rightarrow e^+ \nu_e X$) = 1.08 ± 0.05 ± 0.02.

$\Gamma(e^+ \nu_e X_c)/\Gamma_{\text{total}}$ Γ_2/Γ

VALUE (units 10^{-2})	*DOCUMENT ID*		*TECN*	*COMMENT*
10.08±0.30±0.22	[1] URQUIJO	07	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] Measure the independent B^+ and B^0 partial branching fractions with electron threshold energies of 0.4 GeV.

$\Gamma(\ell^+ \nu_\ell X_u)/\Gamma_{\text{total}}$ Γ_3/Γ

Requires $E^*_\ell > 1$ GeV, where E^*_ℓ is letpon energy in B rest frame.

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.51±0.10±0.16	[1] CAO	21A	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] The correlation of 50% with B($B^+ \rightarrow \ell^+ \nu_\ell X_u$)(letpon energy in B rest frame $E^*_\ell >$ 1 GeV) was reported.

$\Gamma(D^- \ell^+ \nu_\ell)/\Gamma_{\text{total}}$ Γ_5/Γ

ℓ denotes e or μ, not the sum.

"OUR EVALUATION" is an average using rescaled values of the data listed below. The average and rescaling were performed by the Heavy Flavor Averaging Group (HFLAV) and are described at https://hflav.web.cern.ch/. The averaging/rescaling procedure takes into account correlations between the measurements.

VALUE (%)	*DOCUMENT ID*		*TECN*	*COMMENT*
2.24±0.09 OUR EVALUATION				
2.25±0.08 OUR AVERAGE				
2.31±0.03±0.11	[1] GLATTAUER	16	BELL	$e^+ e^- \to \Upsilon(4S)$
2.21±0.11±0.11	[2] AUBERT	10	BABR	$e^+ e^- \to \Upsilon(4S)$
2.09±0.13±0.18	[3] BARTELT	99	CLE2	$e^+ e^- \to \Upsilon(4S)$
2.35±0.20±0.44	[4] BUSKULIC	97	ALEP	$e^+ e^- \to Z$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
2.21±0.11±0.12	[2] AUBERT	08Q	BABR	Repl. by AUBERT 10
2.13±0.12±0.39	ABE	02E	BELL	Repl. by GLATTAUER 16
1.87±0.15±0.32	[5] ATHANAS	97	CLE2	Repl. by BARTELT 99
1.8 ±0.6 ±0.3	[6] FULTON	91	CLEO	$e^+ e^- \to \Upsilon(4S)$
2.0 ±0.7 ±0.6	[7] ALBRECHT	89J	ARG	$e^+ e^- \to \Upsilon(4S)$

[1] Uses a fully reconstructed B meson as a tag on the recoil side while the other, on the signal side, is partially reconstructed from $B \to D \ell \nu$.

[2] Uses a fully reconstructed B meson as a tag on the recoil side.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[4] BUSKULIC 97 assumes fraction (B^+) = fraction $(B^0) = (37.8 \pm 2.2)\%$ and PDG 96 values for B lifetime and branching ratio of D^* and D decays.

[5] ATHANAS 97 uses missing energy and missing momentum to reconstruct neutrino.

[6] FULTON 91 assumes assuming equal production of B^0 and B^+ at the $\Upsilon(4S)$ and uses Mark III D and D^* branching ratios.

[7] ALBRECHT 89J reports $0.018 \pm 0.006 \pm 0.005$. We rescale using the method described in STONE 94 but with the updated PDG 94 B($D^0 \to K^- \pi^+$).

$\Gamma(D^- \ell^+ \nu_\ell)/\Gamma(\ell^+ \nu_\ell X)$ Γ_5/Γ_1

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.230±0.011±0.011	[1] AUBERT	10	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Uses a fully reconstructed B meson on the recoil side.

$\Gamma(D^- \ell^+ \nu_\ell)/\Gamma(D \ell^+ \nu_\ell X)$ Γ_5/Γ_4

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.215±0.016±0.013	[1] AUBERT	07AN	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Uses a fully reconstructed B meson on the recoil side.

$\Gamma(D^- \tau^+ \nu_\tau)/\Gamma_{\text{total}}$ Γ_6/Γ

VALUE (units 10^{-2})	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.04±0.35±0.18	[1] AUBERT	08N	BABR	Repl. by AUBERT 09S

[1] Uses a fully reconstructed B meson as a tag on the recoil side.

$\Gamma(D^- \tau^+ \nu_\tau)/\Gamma(D^- \ell^+ \nu_\ell)$ Γ_6/Γ_5

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.469 \pm 0.084 \pm 0.053$	[1,2] LEES 12D	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.489 \pm 0.165 \pm 0.069$	[1] AUBERT 09S	BABR	Repl. by LEES 12D

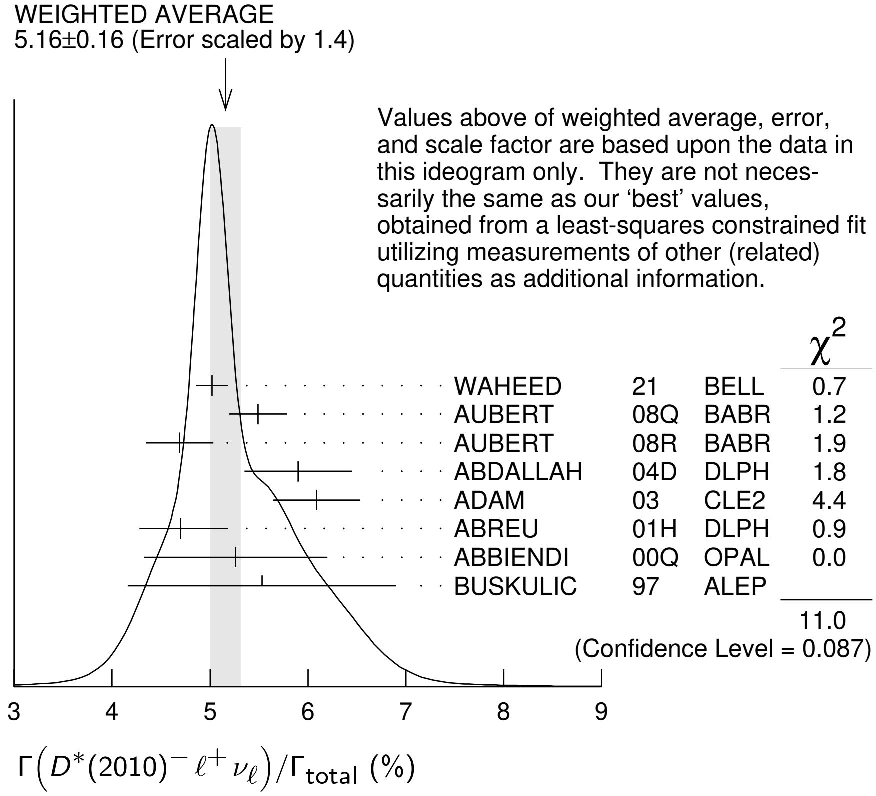
[1] Uses a fully reconstructed B meson as a tag on the recoil side.

[2] Uses $\tau^+ \rightarrow e^+ \nu_e \overline{\nu}_\tau$ and $\tau^+ \rightarrow \mu^+ \nu_\mu \overline{\nu}_\tau$ and e^+ or μ^+ as ℓ^+.

$\Gamma(D^*(2010)^- \ell^+ \nu_\ell)/\Gamma_{\text{total}}$ Γ_7/Γ

"OUR EVALUATION" is an average using rescaled values of the data listed below. The average and rescaling were performed by the Heavy Flavor Averaging Group (HFLAV) and are described at https://hflav.web.cern.ch/. The averaging/rescaling procedure takes into account correlations between the measurements.

VALUE (%)	*EVTS*	*DOCUMENT ID*	*TECN*	*COMMENT*
4.97 ± 0.12 OUR EVALUATION		This value assumes isospin symmetry.		
5.14 ± 0.15 OUR FIT		Error includes scale factor of 1.3.		
5.16 ± 0.16 OUR AVERAGE		Error includes scale factor of 1.4. See the ideogram below.		
$5.02 \pm 0.02 \pm 0.16$		[1] WAHEED 21	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
$5.49 \pm 0.16 \pm 0.25$		[2] AUBERT 08Q	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
$4.69 \pm 0.04 \pm 0.34$		[3] AUBERT 08R	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
$5.90 \pm 0.22 \pm 0.50$		[4] ABDALLAH 04D	DLPH	$e^+ e^- \rightarrow Z^0$
$6.09 \pm 0.19 \pm 0.40$		[5] ADAM 03	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
$4.70 \pm 0.13 ^{+0.36}_{-0.31}$		[6] ABREU 01H	DLPH	$e^+ e^- \rightarrow Z$
$5.26 \pm 0.20 \pm 0.46$		[7] ABBIENDI 00Q	OPAL	$e^+ e^- \rightarrow Z$
$5.53 \pm 0.26 \pm 0.52$		[8] BUSKULIC 97	ALEP	$e^+ e^- \rightarrow Z$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$4.90 \pm 0.02 \pm 0.16$		[1] WAHEED 19	BELL	Repl. by WAHEED 21
$4.58 \pm 0.03 \pm 0.26$		[1] DUNGEL 10	BELL	Repl. by WAHEED 19
$4.90 \pm 0.07 ^{+0.36}_{-0.35}$		[4] AUBERT 05E	BABR	Repl. by AUBERT 08R
$5.39 \pm 0.11 \pm 0.34$		[9] ABDALLAH 04D	DLPH	$e^+ e^- \rightarrow Z^0$
$4.59 \pm 0.23 \pm 0.40$		[10] ABE 02F	BELL	Repl. by DUNGEL 10
$6.09 \pm 0.19 \pm 0.40$		[11] BRIERE 02	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
$5.08 \pm 0.21 \pm 0.66$		[12] ACKERSTAFF 97G	OPAL	Repl. by ABBIENDI 00Q
$5.52 \pm 0.17 \pm 0.68$		[13] ABREU 96P	DLPH	Repl. by ABREU 01H
$4.49 \pm 0.32 \pm 0.39$	376	[14] BARISH 95	CLE2	Repl. by ADAM 03
$5.18 \pm 0.30 \pm 0.62$	410	[15] BUSKULIC 95N	ALEP	Sup. by BUSKULIC 97
$4.5 \pm 0.3 \pm 0.4$		[16] ALBRECHT 94	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$
$4.7 \pm 0.5 \pm 0.5$	235	[17] ALBRECHT 93	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$
seen	398	[18] SANGHERA 93	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
$7.0 \pm 1.8 \pm 1.4$		[19] ANTREASYAN 90B	CBAL	$e^+ e^- \rightarrow \Upsilon(4S)$
		[20] ALBRECHT 89C	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$
$6.0 \pm 1.0 \pm 1.4$		[21] ALBRECHT 89J	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$
$4.0 \pm 0.4 \pm 0.6$		[22] BORTOLETTO 89B	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$
$7.0 \pm 1.2 \pm 1.9$	47	[23] ALBRECHT 87J	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$



[1] WAHEED 21 uses fully reconstructed $D^{*-} \ell^+ \nu$ events ($\ell = e$ or μ).

[2] Uses a fully reconstructed B meson as a tag on the recoil side.

[3] Measured using fully reconstructed D^* sample and a simultaneous fit to the Caprini-Lellouch-Neubert form factor parameters: $\rho^2 = 1.191 \pm 0.048 \pm 0.028$, $R_1(1) = 1.429 \pm 0.061 \pm 0.044$, and $R_2(1) = 0.827 \pm 0.038 \pm 0.022$.

[4] Measured using fully reconstructed D^* sample.

[5] Uses the combined fit of both $B^0 \rightarrow D^*(2010)^- \ell \nu$ and $B^+ \rightarrow \overline{D}(2007)^0 \ell \nu$ samples.

[6] ABREU 01H measured using about 5000 partial reconstructed D^* sample.

[7] ABBIENDI 00Q assumes the fraction B($b \rightarrow B^0$)= $(39.7^{+1.8}_{-2.2})$%. This result is an average of two methods using exclusive and partial D^* reconstruction.

[8] BUSKULIC 97 assumes fraction (B^+) = fraction (B^0) = (37.8 ± 2.2)% and PDG 96 values for B lifetime and D^* and D branching fractions.

[9] Combines with previous partial reconstructed D^* measurement.

[10] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[11] The results are based on the same analysis and data sample reported in ADAM 03.

[12] ACKERSTAFF 97G assumes fraction (B^+) = fraction (B^0) = (37.8 ± 2.2)% and PDG 96 values for B lifetime and branching ratio of D^* and D decays.

[13] ABREU 96P result is the average of two methods using exclusive and partial D^* reconstruction.

[14] BARISH 95 use B($D^0 \rightarrow K^- \pi^+$) = (3.91 ± 0.08 ± 0.17)% and B($D^{*+} \rightarrow D^0 \pi^+$) = (68.1 ± 1.0 ± 1.3)%.

[15] BUSKULIC 95N assumes fraction (B^+) = fraction (B^0) = 38.2 ± 1.3 ± 2.2% and τ_{B^0} = 1.58 ± 0.06 ps. $\Gamma(D^{*-} \ell^+ \nu_\ell)$/total = [5.18 − 0.13(fraction(B^0)−38.2)−1.5(τ_{B^0} − 1.58)]%.

[16] ALBRECHT 94 assumes B($D^{*+} \rightarrow D^0 \pi^+$) = 68.1 ± 1.0 ± 1.3%. Uses partial reconstruction of D^{*+} and is independent of D^0 branching ratios.

[17] ALBRECHT 93 reports 0.052 ± 0.005 ± 0.006. We rescale using the method described in STONE 94 but with the updated PDG 94 B($D^0 \to K^- \pi^+$). We have taken their average e and μ value. They also obtain $\alpha = 2*\Gamma^0/(\Gamma^- + \Gamma^+) - 1 = 1.1 \pm 0.4 \pm 0.2$, $A_{AF} = 3/4*(\Gamma^- - \Gamma^+)/\Gamma = 0.2 \pm 0.08 \pm 0.06$ and a value of $|V_{cb}| = 0.036$–0.045 depending on model assumptions.

[18] Combining $\overline{D}^{*0} \ell^+ \nu_\ell$ and $\overline{D}^{*-} \ell^+ \nu_\ell$ SANGHERA 93 test $V-A$ structure and fit the decay angular distributions to obtain $A_{FB} = 3/4*(\Gamma^- - \Gamma^+)/\Gamma = 0.14 \pm 0.06 \pm 0.03$. Assuming a value of V_{cb}, they measure V, A_1, and A_2, the three form factors for the $D^* \ell \nu_\ell$ decay, where results are slightly dependent on model assumptions.

[19] ANTREASYAN 90B is average over B and $\overline{D}^*(2010)$ charge states.

[20] The measurement of ALBRECHT 89C suggests a D^* polarization γ_L/γ_T of 0.85 ± 0.45. or $\alpha = 0.7 \pm 0.9$.

[21] ALBRECHT 89J is ALBRECHT 87J value rescaled using B($D^*(2010)^- \to D^0 \pi^-$) = 0.57 ± 0.04 ± 0.04. Superseded by ALBRECHT 93.

[22] We have taken average of the the BORTOLETTO 89B values for electrons and muons, 0.046 ± 0.005 ± 0.007. We rescale using the method described in STONE 94 but with the updated PDG 94 B($D^0 \to K^- \pi^+$). The measurement suggests a D^* polarization parameter value $\alpha = 0.65 \pm 0.66 \pm 0.25$.

[23] ALBRECHT 87J assume μ-e universality, the B($\Upsilon(4S) \to B^0 \overline{B}^0$) = 0.45, the B($D^0 \to K^- \pi^+$) = (0.042 ± 0.004 ± 0.004), and the B($D^*(2010)^- \to D^0 \pi^-$) = 0.49 ± 0.08. Superseded by ALBRECHT 89J.

$\Gamma(D^*(2010)^- \ell^+ \nu_\ell)/\Gamma(D \ell^+ \nu_\ell X)$ Γ_7/Γ_4

VALUE	DOCUMENT ID		TECN	COMMENT
0.537±0.031±0.036	[1] AUBERT	07AN	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Uses a fully reconstructed B meson on the recoil side.

$\Gamma(D^*(2010)^- \tau^+ \nu_\tau)/\Gamma_{\text{total}}$ Γ_8/Γ

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
1.58±0.09 OUR FIT Error includes scale factor of 1.1.				
1.48±0.18 OUR AVERAGE Error includes scale factor of 1.1.				
1.42±0.094±0.140	[1] AAIJ	18D	LHCB	pp at 7, 8 TeV
$2.02^{+0.40}_{-0.37}$ ±0.37	[2] MATYJA	07	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.11±0.51 ±0.06	[3] AUBERT	08N	BABR	Repl. by AUBERT 09S

[1] Noramlizes to B($B^0 \to D^*(2010)^- \pi^+ \pi^- \pi^+$) = (7.214 ± 0.28) × 10^{-3}.

[2] Observed in the recoil of the accompanying B meson.

[3] Uses a fully reconstructed B meson as a tag on the recoil side.

$\Gamma(D^*(2010)^- \tau^+ \nu_\tau)/\Gamma(D^*(2010)^- \ell^+ \nu_\ell)$ Γ_8/Γ_7

VALUE	DOCUMENT ID		TECN	COMMENT
0.308±0.016 OUR FIT				
0.315±0.018 OUR AVERAGE				
0.291±0.019±0.029	[1] AAIJ	18D	LHCB	pp at 7, 8 TeV
0.302±0.030±0.011	[2] SATO	16B	BELL	$e^+ e^- \to \Upsilon(4S)$
0.336±0.027±0.030	[3] AAIJ	15Q	LHCB	pp at 7, 8 TeV
0.355±0.039±0.021	[4,5] LEES	12D	BABR	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.207 \pm 0.095 \pm 0.008$	[4] AUBERT	09S	BABR	Repl. by LEES 12D

[1] Uses $\tau^+ \to \pi^+\pi^-\pi^+\overline{\nu}_\tau$ and $\tau^+ \to \pi^+\pi^-\pi^+\pi^0\overline{\nu}_\tau$, and μ^+ as ℓ^+.

[2] Uses semileptonic B decay events for tagging and $\tau^+ \to \ell^+\nu_\ell\overline{\nu}_\tau$ mode.

[3] Uses $\tau^+ \to \mu^+\nu_\mu\overline{\nu}_\tau$ and μ^+ as ℓ^+.

[4] Uses a fully reconstructed B meson as a tag on the recoil side.

[5] Uses $\tau^+ \to e^+\nu_e\overline{\nu}_\tau$ and $\tau^+ \to \mu^+\nu_\mu\overline{\nu}_\tau$ and e^+ or μ^+ as ℓ^+.

$\Gamma\big(D^*(2010)^-\tau^+\nu_\tau\big)/\Gamma\big(D^*(2010)^-\pi^+\pi^+\pi^-\big)$ Γ_8/Γ_{58}

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$1.97 \pm 0.13 \pm 0.18$	[1] AAIJ	18D	LHCB	pp at 7, 8 TeV

[1] Uses $\tau^+ \to \pi^+\pi^-\pi^+\overline{\nu}_\tau$ and $\tau^+ \to \pi^+\pi^-\pi^+\pi^0\overline{\nu}_\tau$ modes.

$\Gamma\big(\overline{D}^0\pi^-\ell^+\nu_\ell\big)/\Gamma_{\text{total}}$ Γ_9/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
4.1 ± 0.5 OUR AVERAGE				
$4.05 \pm 0.36 \pm 0.41$	VOSSEN	18	BELL	$e^+e^- \to \Upsilon(4S)$
$4.3 \pm 0.8 \pm 0.3$	[1] AUBERT	08Q	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$4.4 \pm 0.9 \pm 0.2$	[1,2] LIVENTSEV	08	BELL	Repl. by VOSSEN 18
$3.4 \pm 1.0 \pm 0.1$	[3] LIVENTSEV	05	BELL	Repl. by LIVENTSEV 08

[1] Uses a fully reconstructed B meson as a tag on the recoil side.

[2] LIVENTSEV 08 reports $(4.2 \pm 0.7 \pm 0.6) \times 10^{-3}$ from a measurement of $[\Gamma\big(B^0 \to \overline{D}^0\pi^-\ell^+\nu_\ell\big)/\Gamma_{\text{total}}]$ / $[B(B^0 \to D^-\ell^+\nu_\ell)]$ assuming $B(B^0 \to D^-\ell^+\nu_\ell) = (2.12 \pm 0.20) \times 10^{-2}$, which we rescale to our best value $B(B^0 \to D^-\ell^+\nu_\ell) = (2.24 \pm 0.09) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] LIVENTSEV 05 reports $[\Gamma\big(B^0 \to \overline{D}^0\pi^-\ell^+\nu_\ell\big)/\Gamma_{\text{total}}]$ / $[B(B^+ \to \overline{D}^0\ell^+\nu_\ell)] = 0.15 \pm 0.03 \pm 0.03$ which we multiply by our best value $B(B^+ \to \overline{D}^0\ell^+\nu_\ell) = (2.30 \pm 0.09) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma\big(D_0^*(2300)^-\ell^+\nu_\ell,\ D_0^{*-} \to \overline{D}^0\pi^-\big)/\Gamma_{\text{total}}$ Γ_{10}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
3.0 ± 1.2 OUR AVERAGE Error includes scale factor of 1.8.				
$4.4 \pm 0.8 \pm 0.6$	[1] AUBERT	08BL	BABR	$e^+e^- \to \Upsilon(4S)$
$2.0 \pm 0.7 \pm 0.5$	[1] LIVENTSEV	08	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Uses a fully reconstructed B meson as a tag on the recoil side.

$\Gamma\big(D_2^*(2460)^-\ell^+\nu_\ell,\ D_2^{*-} \to \overline{D}^0\pi^-\big)/\Gamma_{\text{total}}$ Γ_{11}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.21 ± 0.33 OUR AVERAGE Error includes scale factor of 1.8.				
$1.10 \pm 0.17 \pm 0.08$	[1] AUBERT	09Y	BABR	$e^+e^- \to \Upsilon(4S)$
$2.2 \pm 0.4 \pm 0.4$	[2] LIVENTSEV	08	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Uses a simultaneous fit of all B semileptonic decays without full reconstruction of events. AUBERT 09Y reports $B(B^0 \to \overline{D}_2^*(2460)^-\ell^+\nu_\ell) \cdot B(\overline{D}_2^*(2460)^- \to \overline{D}^{(*)0}\pi^-) = (1.77 \pm 0.26 \pm 0.11) \times 10^{-3}$ and the authors have provided us the individual measurement.

[2] Uses a fully reconstructed B meson as a tag on the recoil side.

$\Gamma\big(\overline{D}^{(*)} n\pi \ell^+ \nu_\ell (n \geq 1)\big)/\Gamma\big(D \ell^+ \nu_\ell X\big)$ Γ_{12}/Γ_4

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.248±0.032±0.030	[1] AUBERT	07AN	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Uses a fully reconstructed B meson on the recoil side.

$\Gamma\big(\overline{D}^{*0} \pi^- \ell^+ \nu_\ell\big)/\Gamma_{\text{total}}$ Γ_{13}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
5.8 ±0.8 OUR AVERAGE	Error includes scale factor of 1.4.			
6.46±0.53±0.52	VOSSEN	18	BELL	$e^+ e^- \to \Upsilon(4S)$
4.8 ±0.8 ±0.4	[1] AUBERT	08Q	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5.9 ±2.3 ±0.2	[1,2] LIVENTSEV	08	BELL	Repl. by VOSSEN 18
5.6 ±1.2 ±0.2	[3,4] LIVENTSEV	05	BELL	Repl. by LIVENTSEV 08

[1] Uses a fully reconstructed B meson as a tag on the recoil side.

[2] LIVENTSEV 08 reports $(5.6 \pm 2.1 \pm 0.8) \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to \overline{D}^{*0} \pi^- \ell^+ \nu_\ell)/\Gamma_{\text{total}}]$ / $[B(B^0 \to D^- \ell^+ \nu_\ell)]$ assuming $B(B^0 \to D^- \ell^+ \nu_\ell) = (2.12 \pm 0.20) \times 10^{-2}$, which we rescale to our best value $B(B^0 \to D^- \ell^+ \nu_\ell) = (2.24 \pm 0.09) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] Excludes D^{*+} contribution to $D\pi$ modes.

[4] LIVENTSEV 05 reports $[\Gamma(B^0 \to \overline{D}^{*0} \pi^- \ell^+ \nu_\ell)/\Gamma_{\text{total}}]$ / $[B(B^+ \to \overline{D}^*(2007)^0 \ell^+ \nu_\ell)] = 0.10 \pm 0.02 \pm 0.01$ which we multiply by our best value $B(B^+ \to \overline{D}^*(2007)^0 \ell^+ \nu_\ell) = (5.58 \pm 0.22) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma\big(D_1(2420)^- \ell^+ \nu_\ell,\ D_1^- \to \overline{D}^{*0} \pi^-\big)/\Gamma_{\text{total}}$ Γ_{14}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.80±0.28 OUR AVERAGE				
2.78±0.24±0.25	[1] AUBERT	09Y	BABR	$e^+ e^- \to \Upsilon(4S)$
2.7 ±0.4 ±0.3	[2] AUBERT	08BL	BABR	$e^+ e^- \to \Upsilon(4S)$
5.4 ±1.9 ±0.9	[2] LIVENTSEV	08	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Uses a simultaneous measurement of all B semileptonic decays without full reconstruction of events.

[2] Uses a fully reconstructed B meson as a tag on the recoil side.

$\Gamma\big(D_1'(2430)^- \ell^+ \nu_\ell,\ D_1'^- \to \overline{D}^{*0} \pi^-\big)/\Gamma_{\text{total}}$ Γ_{15}/Γ

VALUE (units 10^{-3})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
3.1±0.7±0.5		[1] AUBERT	08BL	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<5.0	90	[1] LIVENTSEV	08	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Uses a fully reconstructed B meson as a tag on the recoil side.

$\Gamma\big(D_2^*(2460)^- \ell^+ \nu_\ell,\ D_2^{*-} \to \overline{D}^{*0} \pi^-\big)/\Gamma_{\text{total}}$ Γ_{16}/Γ

VALUE (units 10^{-3})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.68±0.12 OUR AVERAGE					
0.67±0.12±0.05		[1] AUBERT	09Y	BABR	$e^+ e^- \to \Upsilon(4S)$
0.7 ±0.2 ±0.2		[2] AUBERT	08BL	BABR	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

<3.0	90	[2] LIVENTSEV	08	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Uses a simultaneous fit of all B semileptonic decays without full reconstruction of events. AUBERT 09Y reports $B(B^0 \to \overline{D}{}_2^*(2460)^- \ell^+ \nu_\ell) \cdot B(\overline{D}{}_2^*(2460)^- \to \overline{D}{}^{(*)0} \pi^-) = (1.77 \pm 0.26 \pm 0.11) \times 10^{-3}$ and the authors have provided us the individual measurement.

[2] Uses a fully reconstructed B meson as a tag on the recoil side.

$\Gamma(D^- \pi^+ \pi^- \ell^+ \nu_\ell)/\Gamma(D^- \ell^+ \nu_\ell)$ Γ_{17}/Γ_5

VALUE (units 10^{-2})	*DOCUMENT ID*		*TECN*	*COMMENT*
5.8±1.8±1.2	[1] LEES	16	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Measurement used electrons and muons as leptons.

$\Gamma(D^{*-} \pi^+ \pi^- \ell^+ \nu_\ell)/\Gamma(D^*(2010)^- \ell^+ \nu_\ell)$ Γ_{18}/Γ_7

VALUE (units 10^{-2})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.8±0.8±0.6	[1] LEES	16	BABR	$e^+e^- \to \Upsilon(4S)$

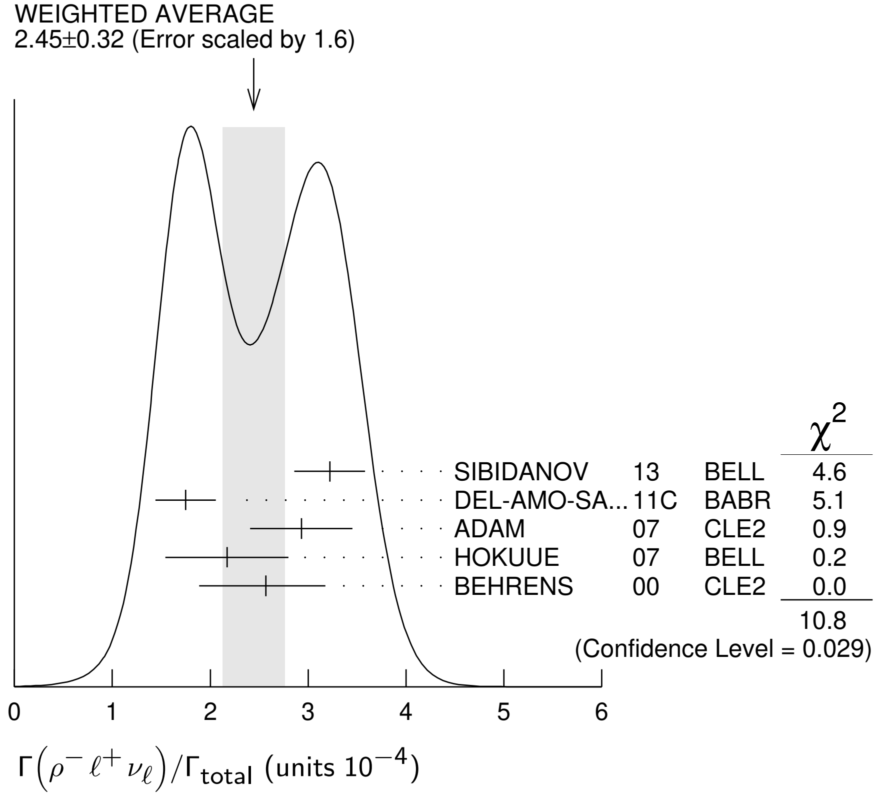
[1] Measurement used electrons and muons as leptons.

$\Gamma(\rho^- \ell^+ \nu_\ell)/\Gamma_{\text{total}}$ Γ_{19}/Γ

$\ell = e$ or μ, not sum over e and μ modes.

"OUR EVALUATION" has been obtained by the Heavy Flavor Averaging Group (HFLAV) by including both B^0 and B^+ decays. The average assumes equality of the semileptonic decay width for these isospin conjugate states.

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.94±0.11±0.18 OUR EVALUATION					
2.45±0.32 OUR AVERAGE		Error includes scale factor of 1.6. See the ideogram below.			
$3.22 \pm 0.27 \pm 0.24$		[1] SIBIDANOV	13	BELL	$e^+e^- \to \Upsilon(4S)$
$1.75 \pm 0.15 \pm 0.27$		[2] DEL-AMO-SA...	11C	BABR	$e^+e^- \to \Upsilon(4S)$
$2.93 \pm 0.37 \pm 0.37$		[3] ADAM	07	CLE2	$e^+e^- \to \Upsilon(4S)$
$2.17 \pm 0.54 \pm 0.32$		[4] HOKUUE	07	BELL	$e^+e^- \to \Upsilon(4S)$
$2.57 \pm 0.29 ^{+0.53}_{-0.62}$		[5] BEHRENS	00	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$2.14 \pm 0.21 \pm 0.56$		[2] AUBERT,B	05O	BABR	Repl. by DEL-AMO-SANCHEZ 11C
$2.17 \pm 0.34 ^{+0.62}_{-0.68}$		[6] ATHAR	03	CLE2	Repl. by ADAM 07
$3.29 \pm 0.42 \pm 0.72$		[7] AUBERT	03E	BABR	Repl. by AUBERT,B 05O
$2.69 \pm 0.41 ^{+0.61}_{-0.64}$		[8] BEHRENS	00	CLE2	$e^+e^- \to \Upsilon(4S)$
$2.5 \pm 0.4 ^{+0.7}_{-0.9}$		[9] ALEXANDER	96T	CLE2	Repl. by BEHRENS 00
<4.1	90	[10] BEAN	93B	CLE2	$e^+e^- \to \Upsilon(4S)$



[1] The signal events are tagged by a second B meson reconstructed in the fully hadronic decays.

[2] B^+ and B^0 decays combined assuming isospin symmetry. Systematic errors include both experimental and form-factor uncertainties.

[3] The B^0 and B^+ results are combined assuming the isospin, B lifetimes, and relative charged/neutral B production at the $\Upsilon(4S)$.

[4] The signal events are tagged by a second B meson reconstructed in the semileptonic mode $B \rightarrow D^{(*)} \ell \nu_\ell$.

[5] Averaging with ALEXANDER 96T results including experimental and theoretical correlations considered, BEHRENS 00 reports systematic errors $^{+0.33}_{-0.46} \pm 0.41$, where the second error is theoretical model dependence. We combine these in quadrature.

[6] ATHAR 03 reports systematic errors $^{+0.47}_{-0.50} \pm 0.41 \pm 0.01$, which are experimental systematic, systematic due to residual form-factor uncertainties in the signal, and systematic due to residual form-factor uncertainties in the cross-feed modes, respectively. We combine these in quadrature.

[7] Uses isospin constraints and extrapolation to all electron energies according to five different form-factor calculations. The second error combines the systematic and theoretical uncertainties in quadrature.

[8] BEHRENS 00 reports $^{+0.35}_{-0.40} \pm 0.50$, where the second error is the theoretical model dependence. We combine these in quadrature. B^+ and B^0 decays combined using isospin symmetry: $\Gamma(B^0 \rightarrow \rho^- \ell^+ \nu) = 2\Gamma(B^+ \rightarrow \rho^0 \ell^+ \nu) \approx 2\Gamma(B^+ \rightarrow \omega \ell^+ \nu)$. No evidence for $\omega \ell \nu$ is reported.

[9] ALEXANDER 96T reports $^{+0.5}_{-0.7} \pm 0.5$ where the second error is the theoretical model dependence. We combine these in quadrature. B^+ and B^0 decays combined using isospin symmetry: $\Gamma(B^0 \rightarrow \rho^- \ell^+ \nu) = 2\Gamma(B^+ \rightarrow \rho^0 \ell^+ \nu) \approx 2\Gamma(B^+ \rightarrow \omega \ell^+ \nu)$. No evidence for $\omega \ell \nu$ is reported.

[10] BEAN 93B limit set using ISGW Model. Using isospin and the quark model to combine $\Gamma(\rho^0 \ell^+ \nu_\ell)$ and $\Gamma(\omega \ell^+ \nu_\ell)$ with this result, they obtain a limit $<(1.6\text{–}2.7) \times 10^{-4}$ at 90% CL for $B^+ \rightarrow (\omega \text{or } \rho^0)\ell^+ \nu_\ell$. The range corresponds to the ISGW, WSB, and KS models. An upper limit on $|V_{ub}/V_{cb}| < 0.08\text{–}0.13$ at 90% CL is derived as well.

$\Gamma(\pi^- \ell^+ \nu_\ell)/\Gamma_{\text{total}}$ Γ_{20}/Γ

"OUR EVALUATION" is provided by the Heavy Flavor Averaging Group (HFLAV) and the procedure is described at https://hflav.web.cern.ch/.

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.50±0.06 OUR EVALUATION				
1.46±0.04 OUR AVERAGE				
1.49±0.09±0.07	[1] SIBIDANOV	13	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
1.47±0.05±0.06	[2,3] LEES	12AA	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
1.41±0.05±0.07	[4] DEL-AMO-SA..	11C	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
1.49±0.04±0.07	[2] HA	11	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
1.54±0.17±0.09	[4] AUBERT	08AV	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
1.37±0.15±0.11	[5,6] ADAM	07	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
1.38±0.19±0.14	[7] HOKUUE	07	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

1.42±0.05±0.08	[2] DEL-AMO-SA..	11F	BABR	Repl. by LEES 12AA
1.46±0.07±0.08	[8] AUBERT	07J	BABR	Repl. by DEL-AMO-SANCHEZ 11F
1.33±0.17±0.11	[9] AUBERT,B	06K	BABR	Repl. by AUBERT 08AV
1.38±0.10±0.18	[10] AUBERT,B	05O	BABR	Repl. by DEL-AMO-SANCHEZ 11C
1.33±0.18±0.13	[11] ATHAR	03	CLE2	Repl. by ADAM 07
1.8 ±0.4 ±0.4	[12] ALEXANDER	96T	CLE2	Repl. by ATHAR 03

[1] The signal events are tagged by a second B meson reconstructed in the fully hadronic decays.

[2] Uses loose neutrino reconstruction technique. Assumes $\text{B}(\Upsilon(4S) \rightarrow B^+ B^-) = (51.6 \pm 0.6)\%$ and $\text{B}(\Upsilon(4S) \rightarrow B^0 \overline{B}^0) = (48.4 \pm 0.6)\%$.

[3] Reports also a branching fraction value $\text{B}(B^0 \rightarrow \pi^- \ell^+ \nu) = (1.45 \pm 0.04 \pm 0.06) \times 10^{-4}$ from the decays of B^+ and B^0 that are combined using the isospin symmetry relation.

[4] Using the isospin symmetry relation, B^+ and B^0 branching fractions are combined.

[5] The B^0 and B^+ results are combined assuming the isospin, B lifetimes, and relative charged/neutral B production at the $\Upsilon(4S)$.

[6] Also report the rate for $q^2 > 16$ GeV^2 of $(0.41 \pm 0.08 \pm 0.04) \times 10^{-4}$ from which they obtain $|V_{ub}| = 3.6 \pm 0.4 \pm 0.2^{+0.6}_{-0.4}$ (last error is from theory).

[7] The signal events are tagged by a second B meson reconstructed in the semileptonic mode $B \rightarrow D^{(*)} \ell \nu_\ell$.

[8] The analysis uses events in which the signal B decays are reconstructed with an innovative loose neutrino reconstruction technique.

[9] The signals are tagged by a second B meson reconstructed in a semileptonic or hadronic decay. The B^0 and B^+ results are combined assuming the isospin symmetry.

[10] B^+ and B^0 decays combined assuming isospin symmetry. Systematic errors include both experimental and form-factor uncertainties.

[11] ATHAR 03 reports systematic errors $0.11 \pm 0.01 \pm 0.07$, which are experimental systematic, systematic due to residual form-factor uncertainties in the signal, and systematic due to residual form-factor uncertainties in the cross-feed modes, respectively. We combine these in quadrature.

[12] ALEXANDER 96T gives systematic errors $\pm 0.3 \pm 0.2$ where the second error reflects the estimated model dependence. We combine these in quadrature. Assumes isospin symmetry: $\Gamma(B^0 \rightarrow \pi^- \ell^+ \nu) = 2 \times \Gamma(B^+ \rightarrow \pi^0 \ell^+ \nu)$.

$\Gamma(\pi^- \mu^+ \nu_\mu)/\Gamma_{\text{total}}$ Γ_{21}/Γ

VALUE	*DOCUMENT ID*		*TECN*
• • • We do not use the following data for averages, fits, limits, etc. • • •			
seen	[1] ALBRECHT	91C	ARG

[1] In ALBRECHT 91C, one event is fully reconstructed providing evidence for the $b \rightarrow u$ transition.

$\Gamma(\pi^- \tau^+ \nu_\tau)/\Gamma_{\text{total}}$ Γ_{22}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<2.5 \times 10^{-4}$	90	[1] HAMER	16	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^\pm X)/\Gamma_{\text{total}}$ Γ_{23}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.78 ± 0.08	[1] ALBRECHT	96D	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] Average multiplicity.

$\Gamma(D^0 X)/\Gamma_{\text{total}}$ Γ_{24}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.081 \pm 0.014 \pm 0.005$	[1] AUBERT	07N	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.063 \pm 0.019 \pm 0.005$	[1] AUBERT,BE	04B	BABR	Repl. by AUBERT 07N

[1] Events are selected by completely reconstructing one B and searching for a reconstructed charmed particle in the rest of the event. The last error includes systematic and charm branching ratio uncertainties.

$\Gamma(\overline{D}^0 X)/\Gamma_{\text{total}}$ Γ_{25}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.474 \pm 0.020 ^{+0.020}_{-0.019}$	[1] AUBERT	07N	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.511 \pm 0.031 \pm 0.028$	[1] AUBERT,BE	04B	BABR	Repl. by AUBERT 07N

[1] Events are selected by completely reconstructing one B and searching for a reconstructed charmed particle in the rest of the event. The last error includes systematic and charm branching ratio uncertainties.

$\Gamma(D^0 X)/[\Gamma(D^0 X) + \Gamma(\overline{D}^0 X)]$ $\Gamma_{24}/(\Gamma_{24}+\Gamma_{25})$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.146 \pm 0.022 \pm 0.006$	AUBERT	07N	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$0.110 \pm 0.031 \pm 0.008$	AUBERT,BE	04B	BABR	Repl. by AUBERT 07N

$\Gamma(D^+ X)/\Gamma_{\text{total}}$ Γ_{26}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.039	90	[1] AUBERT	07N	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.051	90	[1] AUBERT,BE	04B	BABR	Repl. by AUBERT 07N

[1] Events are selected by completely reconstructing one B and searching for a reconstructed charmed particle in the rest of the event. The last error includes systematic and charm branching ratio uncertainties.

$\Gamma(D^- X)/\Gamma_{\text{total}}$ Γ_{27}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.369 \pm 0.016 ^{+0.030}_{-0.027}}$	[1] AUBERT	07N	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.397 \pm 0.030 ^{+0.040}_{-0.038}$	[1] AUBERT,BE	04B	BABR	Repl. by AUBERT 07N

[1] Events are selected by completely reconstructing one B and searching for a reconstructed charmed particle in the rest of the event. The last error includes systematic and charm branching ratio uncertainties.

$\Gamma(D^+ X)/\left[\Gamma(D^+ X) + \Gamma(D^- X)\right]$ $\Gamma_{26}/(\Gamma_{26}+\Gamma_{27})$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.058 \pm 0.028 \pm 0.006}$	AUBERT	07N	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.055 \pm 0.040 \pm 0.006$	AUBERT,BE	04B	BABR	Repl. by AUBERT 07N

$\Gamma(D_s^+ X)/\Gamma_{\text{total}}$ Γ_{28}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.103 \pm 0.012 ^{+0.017}_{-0.014}}$	[1] AUBERT	07N	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.109 \pm 0.021 ^{+0.039}_{-0.024}$	[1] AUBERT,BE	04B	BABR	Repl. by AUBERT 07N

[1] Events are selected by completely reconstructing one B and searching for a reconstructed charmed particle in the rest of the event. The last error includes systematic and charm branching ratio uncertainties.

$\Gamma(D_s^- X)/\Gamma_{\text{total}}$ Γ_{29}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.026	90	[1] AUBERT	07N	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.087	90	[1] AUBERT,BE	04B	BABR	Repl. by AUBERT 07N

[1] Events are selected by completely reconstructing one B and searching for a reconstructed charmed particle in the rest of the event. The last error includes systematic and charm branching ratio uncertainties.

$\Gamma(D_s^+ X)/[\Gamma(D_s^+ X)+\Gamma(D_s^- X)]$ $\Gamma_{28}/(\Gamma_{28}+\Gamma_{29})$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.879 \pm 0.066 \pm 0.005}$	AUBERT	07N	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.733 \pm 0.092 \pm 0.010$	AUBERT,BE	04B	BABR	Repl. by AUBERT 07N

$\Gamma(\Lambda_c^+ X)/\Gamma_{\text{total}}$ Γ_{30}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<0.031}$	90	[1] AUBERT	07N	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.038	90	[1] AUBERT,BE	04B	BABR	Repl. by AUBERT 07N

[1] Events are selected by completely reconstructing one B and searching for a reconstructed charmed particle in the rest of the event. The last error includes systematic and charm branching ratio uncertainties.

$\Gamma(\overline{\Lambda}_c^- X)/\Gamma_{\text{total}}$ Γ_{31}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.05 \pm 0.010^{+0.019}_{-0.011}}$	[1] AUBERT	07N	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.049 \pm 0.017^{+0.018}_{-0.011}$	[1] AUBERT,BE	04B	BABR	Repl. by AUBERT 07N

[1] Events are selected by completely reconstructing one B and searching for a reconstructed charmed particle in the rest of the event. The last error includes systematic and charm branching ratio uncertainties.

$\Gamma(\Lambda_c^+ X)/[\Gamma(\Lambda_c^+ X)+\Gamma(\overline{\Lambda}_c^- X)]$ $\Gamma_{30}/(\Gamma_{30}+\Gamma_{31})$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.243^{+0.119}_{-0.121} \pm 0.003}$	AUBERT	07N	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.286 \pm 0.142 \pm 0.007$	AUBERT,BE	04B	BABR	Repl. by AUBERT 07N

$\Gamma(\overline{c} X)/\Gamma_{\text{total}}$ Γ_{32}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.947 \pm 0.030^{+0.045}_{-0.040}}$	[1] AUBERT	07N	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.039 \pm 0.051^{+0.063}_{-0.058}$	[1] AUBERT,BE	04B	BABR	Repl. by AUBERT 07N

[1] Events are selected by completely reconstructing one B and searching for a reconstructed charmed particle in the rest of the event. The last error includes systematic and charm branching ratio uncertainties.

$\Gamma(c X)/\Gamma_{\text{total}}$ Γ_{33}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.246 \pm 0.024^{+0.021}_{-0.017}}$	[1] AUBERT	07N	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$0.237 \pm 0.036 ^{+0.041}_{-0.027}$	[1] AUBERT,BE	04B	BABR	Repl. by AUBERT 07N

[1] Events are selected by completely reconstructing one B and searching for a reconstructed charmed particle in the rest of the event. The last error includes systematic and charm branching ratio uncertainties.

$\Gamma(\overline{c}/c X)/\Gamma_{\text{total}}$ Γ_{34}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{1.193 \pm 0.030 ^{+0.053}_{-0.049}}$	[1] AUBERT	07N	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.276 \pm 0.062 ^{+0.088}_{-0.074}$	[1] AUBERT,BE	04B	BABR	Repl. by AUBERT 07N

[1] Events are selected by completely reconstructing one B and searching for a reconstructed charmed particle in the rest of the event. The last error includes systematic and charm branching ratio uncertainties.

$\Gamma(D^- \pi^+)/\Gamma_{\text{total}}$ Γ_{35}/Γ

VALUE (units 10^{-3})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.51±0.08 OUR FIT					
2.56±0.08 OUR AVERAGE					
2.48±0.01±0.10		WAHEED	22	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
2.55±0.05±0.16		[1] AUBERT	07H	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
3.03±0.23±0.23		[2] AUBERT,BE	06J	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
2.68±0.12±0.24		[1,3] AHMED	02B	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
2.7 ±0.6 ±0.5		[4] BORTOLETTO	92	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$
4.8 ±1.1 ±1.1	22	[5] ALBRECHT	90J	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$
$5.1 \; ^{+2.8}_{-2.5} \; ^{+1.3}_{-1.2}$	4	[6] BEBEK	87	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.73±0.19±0.05		[1,7] AUBERT,B	04O	BABR	Repl. by AUBERT 07H
2.83±0.42±0.05	81	[8] ALAM	94	CLE2	Repl. by AHMED 02B
3.1 ±1.3 ±1.0	7	[5] ALBRECHT	88K	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses a missing-mass method. Does not depend on D branching fractions or B^+/B^0 production rates.

[3] AHMED 02B reports an additional uncertainty on the branching ratios to account for 4.5% uncertainty on relative production of B^0 and B^+, which is not included here.

[4] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

[5] ALBRECHT 88K assumes $B^0 \overline{B}^0 : B^+ B^-$ production ratio is 45:55. Superseded by ALBRECHT 90J which assumes 50:50.

[6] BEBEK 87 value has been updated in BERKELMAN 91 to use same assumptions as noted for BORTOLETTO 92.

[7] AUBERT,B 04O reports $[\Gamma(B^0 \rightarrow D^- \pi^+)/\Gamma_{\text{total}}] \times [B(D^+ \rightarrow K^0_S \pi^+)] = (42.7 \pm 2.1 \pm 2.2) \times 10^{-6}$ which we divide by our best value $B(D^+ \rightarrow K^0_S \pi^+) = (1.562 \pm 0.031) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[8] ALAM 94 reports $[\Gamma(B^0 \rightarrow D^- \pi^+)/\Gamma_{\text{total}}] \times [B(D^+ \rightarrow K^- 2\pi^+)] = (0.265 \pm 0.032 \pm 0.023) \times 10^{-3}$ which we divide by our best value $B(D^+ \rightarrow K^- 2\pi^+) =$

(9.38 ± 0.16) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^-\ell^+\nu_\ell)/\Gamma(D^-\pi^+)$ Γ_5/Γ_{35}

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
9.9±1.0±0.9	AALTONEN 09E	CDF	$p\overline{p}$ at 1.96 TeV

$\Gamma(D^-\rho^+)/\Gamma_{\text{total}}$ Γ_{36}/Γ

VALUE	*EVTS*	*DOCUMENT ID*	*TECN*	*COMMENT*
0.0076±0.0012 OUR AVERAGE				
0.0075±0.0013±0.0001	79	[1] ALAM 94	CLE2	$e^+e^- \to \Upsilon(4S)$
0.009 ±0.005 ±0.003	9	[2] ALBRECHT 90J	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.022 ±0.012 ±0.009	6	[2] ALBRECHT 88K	ARG	$e^+e^- \to \Upsilon(4S)$

[1] ALAM 94 reports $[\Gamma(B^0 \to D^-\rho^+)/\Gamma_{\text{total}}] \times [B(D^+ \to K^-2\pi^+)] = 0.000704 \pm 0.000096 \pm 0.000070$ which we divide by our best value $B(D^+ \to K^-2\pi^+) = (9.38 \pm 0.16) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ALBRECHT 88K assumes $B^0\overline{B}^0{:}B^+B^-$ production ratio is 45:55. Superseded by ALBRECHT 90J which assumes 50:50.

$\Gamma(D^-K^0\pi^+)/\Gamma_{\text{total}}$ Γ_{37}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*	*TECN*	*COMMENT*
4.9±0.7±0.5	[1] AUBERT,BE 05B	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^-K^*(892)^+)/\Gamma_{\text{total}}$ Γ_{38}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*	*TECN*	*COMMENT*
4.5±0.7 OUR AVERAGE			
4.6±0.6±0.5	[1] AUBERT,BE 05B	BABR	$e^+e^- \to \Upsilon(4S)$
3.7±1.5±1.0	[1] MAHAPATRA 02	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^-\omega\pi^+)/\Gamma_{\text{total}}$ Γ_{39}/Γ

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.0028±0.0005±0.0004	[1] ALEXANDER 01B	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. The signal is consistent with all observed $\omega\pi^+$ having proceeded through the ρ'^+ resonance at mass $1349 \pm 25^{+10}_{-\ 5}$ MeV and width $547 \pm 86^{+46}_{-45}$ MeV.

$\Gamma(D^-K^+)/\Gamma(D^-\pi^+)$ Γ_{40}/Γ_{35}

VALUE (units 10^{-2})	*DOCUMENT ID*	*TECN*	*COMMENT*
8.19±0.20 OUR AVERAGE			
8.19±0.20±0.23	WAHEED 22	BELL	$e^+e^- \to \Upsilon(4S)$
8.22±0.11±0.25	AAIJ 13P	LHCB	pp at 7 TeV
6.8 ±1.5 ±0.7	ABE 01I	BELL	$e^+e^- \to \Upsilon(4S)$

$\Gamma(D^- K^+ \pi^+ \pi^-)/\Gamma(D^- \pi^+ \pi^+ \pi^-)$ Γ_{41}/Γ_{47}

VALUE (units 10^{-2})	*DOCUMENT ID*		*TECN*	*COMMENT*
5.9±1.1±0.5	AAIJ	12T	LHCB	pp at 7 TeV

$\Gamma(D^- K^+ \overline{K}^0)/\Gamma_{\text{total}}$ Γ_{42}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<3.1	90	[1] DRUTSKOY	02	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^- K^+ \overline{K}^*(892)^0)/\Gamma_{\text{total}}$ Γ_{43}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
8.8±1.1±1.5	[1] DRUTSKOY	02	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{D}^0 \pi^+ \pi^-)/\Gamma_{\text{total}}$ Γ_{44}/Γ

VALUE (units 10^{-4})	*CL%*	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
8.8 ±0.5 OUR AVERAGE						
8.95±0.15±0.52			[1] AAIJ	15Y	LHCB	pp at 7, 8 TeV
8.4 ±0.4 ±0.8			[2] KUZMIN	07	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
8.0 ±0.6 ±1.5			[2,3] SATPATHY	03	BELL	Repl. by KUZMIN 07
< 16	90		[2] ALAM	94	CLE2	$e^+ e^- \to \Upsilon(4S)$
< 70	90		[4] BORTOLETTO	92	CLEO	$e^+ e^- \to \Upsilon(4S)$
<340	90		[5] BEBEK	87	CLEO	$e^+ e^- \to \Upsilon(4S)$
700 ± 500		5	[6] BEHRENDS	83	CLEO	$e^+ e^- \to \Upsilon(4S)$

[1] The second uncertainty combines in quadrature all systematic uncertainties quoted in the paper. AAIJ 15Y reports $B(B^0 \to \overline{D}^0 \pi^+ \pi^-) = (8.46 \pm 0.14 \pm 0.49) \times 10^{-4}$ in the kinematic region $m(\overline{D}^0 \pi^\pm) > 2.1$ GeV which we corrected to the full phase-space dividing by 0.945 from Belle.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] No assumption about the intermediate mechanism is made in the analysis.

[4] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D. The product branching fraction into $D_0^*(2340)\pi$ followed by $D_0^*(2340) \to D^0 \pi$ is < 0.0001 at 90% CL and into $D_2^*(2460)$ followed by $D_2^*(2460) \to D^0 \pi$ is < 0.0004 at 90% CL.

[5] BEBEK 87 assume the $\Upsilon(4S)$ decays 43% to $B^0 \overline{B}^0$. We rescale to 50%. $B(D^0 \to K^- \pi^+) = (4.2 \pm 0.4 \pm 0.4)\%$ and $B(D^0 \to K^- \pi^+ \pi^+ \pi^-) = (9.1 \pm 0.8 \pm 0.8)\%$ were used.

[6] Corrected by us using assumptions: $B(D^0 \to K^- \pi^+) = (0.042 \pm 0.006)$ and $B(\Upsilon(4S) \to B^0 \overline{B}^0) = 50\%$. The product branching ratio is $B(B^0 \to \overline{D}^0 \pi^+ \pi^-) B(\overline{D}^0 \to K^+ \pi^-) = (0.39 \pm 0.26) \times 10^{-2}$.

$\Gamma(D^*(2010)^- \pi^+)/\Gamma_{\text{total}}$ Γ_{45}/Γ

VALUE (units 10^{-3})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.74±0.13 OUR AVERAGE					
2.79±0.08±0.17		[1] AUBERT	07H	BABR	$e^+ e^- \to \Upsilon(4S)$
2.48±0.34±0.08		[2,3] AUBERT,BE	06J	BABR	$e^+ e^- \to \Upsilon(4S)$

$2.81 \pm 0.24 \pm 0.05$		[4] BRANDENB... 98	CLE2	$e^+e^- \to \Upsilon(4S)$
$2.6 \pm 0.3 \pm 0.4$	82	[5] ALAM 94	CLE2	$e^+e^- \to \Upsilon(4S)$
$3.37 \pm 0.96 \pm 0.02$		[6] BORTOLETTO 92	CLEO	$e^+e^- \to \Upsilon(4S)$
$2.36 \pm 0.88 \pm 0.02$	12	[7] ALBRECHT 90J	ARG	$e^+e^- \to \Upsilon(4S)$
$2.36^{+1.50}_{-1.10} \pm 0.02$	5	[8] BEBEK 87	CLEO	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$10 \pm 4 \pm 1$	8	[9] AKERS 94J	OPAL	$e^+e^- \to Z$
$2.7 \pm 1.4 \pm 1.0$	5	[10] ALBRECHT 87C	ARG	$e^+e^- \to \Upsilon(4S)$
$3.5 \pm 2 \pm 2$		[11] ALBRECHT 86F	ARG	$e^+e^- \to \Upsilon(4S)$
$17 \pm 5 \pm 5$	41	[12] GILES 84	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] AUBERT,BE 06J reports $[\Gamma(B^0 \to D^*(2010)^- \pi^+)/\Gamma_{\text{total}}] / [B(B^0 \to D^- \pi^+)] = 0.99 \pm 0.11 \pm 0.08$ which we multiply by our best value $B(B^0 \to D^- \pi^+) = (2.51 \pm 0.08) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] Uses a missing-mass method. Does not depend on D branching fractions or B^+/B^0 production rates.

[4] BRANDENBURG 98 assume equal production of B^+ and B^0 at $\Upsilon(4S)$ and use the D^* reconstruction technique. The first error is their experiment's error and the second error is the systematic error from the PDG 96 value of $B(D^* \to D\pi)$.

[5] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II $B(D^*(2010)^+ \to D^0 \pi^+)$ and absolute $B(D^0 \to K^- \pi^+)$ and the PDG 1992 $B(D^0 \to K^- \pi^+ \pi^0)/B(D^0 \to K^- \pi^+)$ and $B(D^0 \to K^- 2\pi^+ \pi^-)/B(D^0 \to K^- \pi^+)$.

[6] BORTOLETTO 92 reports $(4.0 \pm 1.0 \pm 0.7) \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to D^*(2010)^- \pi^+)/\Gamma_{\text{total}}] \times [B(D^*(2010)^+ \to D^0 \pi^+)]$ assuming $B(D^*(2010)^+ \to D^0 \pi^+) = 0.57 \pm 0.06$, which we rescale to our best value $B(D^*(2010)^+ \to D^0 \pi^+) = (67.7 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

[7] ALBRECHT 90J reports $(2.8 \pm 0.9 \pm 0.6) \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to D^*(2010)^- \pi^+)/\Gamma_{\text{total}}] \times [B(D^*(2010)^+ \to D^0 \pi^+)]$ assuming $B(D^*(2010)^+ \to D^0 \pi^+) = 0.57 \pm 0.06$, which we rescale to our best value $B(D^*(2010)^+ \to D^0 \pi^+) = (67.7 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

[8] BEBEK 87 reports $(2.8^{+1.5+1.0}_{-1.2-0.6}) \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to D^*(2010)^- \pi^+)/\Gamma_{\text{total}}] \times [B(D^*(2010)^+ \to D^0 \pi^+)]$ assuming $B(D^*(2010)^+ \to D^0 \pi^+) = 0.57 \pm 0.06$, which we rescale to our best value $B(D^*(2010)^+ \to D^0 \pi^+) = (67.7 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Updated in BERKELMAN 91 to use same assumptions as noted for BORTOLETTO 92 and ALBRECHT 90J.

[9] Assumes $B(Z \to b\overline{b}) = 0.217$ and 38% B_d production fraction.

[10] ALBRECHT 87C use PDG 86 branching ratios for D and $D^*(2010)$ and assume $B(\Upsilon(4S) \to B^+ B^-) = 55\%$ and $B(\Upsilon(4S) \to B^0 \overline{B}^0) = 45\%$. Superseded by ALBRECHT 90J.

[11] ALBRECHT 86F uses pseudomass that is independent of D^0 and D^+ branching ratios.

[12] Assumes $B(D^*(2010)^+ \to D^0 \pi^+) = 0.60^{+0.08}_{-0.15}$. Assumes $B(\Upsilon(4S) \to B^0 \overline{B}^0) = 0.40 \pm 0.02$ Does not depend on D branching ratios.

$\Gamma(D^*(2010)^- \ell^+ \nu_\ell)/\Gamma(D^*(2010)^- \pi^+)$ Γ_7/Γ_{45}

VALUE	DOCUMENT ID		TECN	COMMENT
16.5±2.3±1.1	AALTONEN	09E	CDF	$p\overline{p}$ at 1.96 TeV

$\Gamma(\overline{D}^0 K^+ K^-)/\Gamma(\overline{D}^0 \pi^+ \pi^-)$ Γ_{46}/Γ_{44}

VALUE	DOCUMENT ID		TECN	COMMENT
0.069±0.004±0.003	AAIJ	18AZ	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.056±0.011±0.007	AAIJ	12AM	LHCB	pp at 7 TeV, Repl. by AAIJ 18AZ

$\Gamma(D^- \pi^+ \pi^+ \pi^-)/\Gamma_{\text{total}}$ Γ_{47}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.0060±0.0006 OUR FIT				
0.0080±0.0021±0.0014	[1] BORTOLETTO	92	CLEO	$e^+ e^- \to \Upsilon(4S)$

[1] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

$\Gamma(D^- \pi^+ \pi^+ \pi^-)/\Gamma(D^- \pi^+)$ Γ_{47}/Γ_{35}

VALUE	DOCUMENT ID		TECN	COMMENT
2.39±0.23 OUR FIT				
2.38±0.11±0.21	AAIJ	11E	LHCB	pp at 7 TeV

$\Gamma((D^- \pi^+ \pi^+ \pi^-) \text{ nonresonant})/\Gamma_{\text{total}}$ Γ_{48}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.0039±0.0014±0.0013	[1] BORTOLETTO	92	CLEO	$e^+ e^- \to \Upsilon(4S)$

[1] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

$\Gamma(D^- \pi^+ \rho^0)/\Gamma_{\text{total}}$ Γ_{49}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.0011±0.0009±0.0004	[1] BORTOLETTO	92	CLEO	$e^+ e^- \to \Upsilon(4S)$

[1] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

$\Gamma(D^- a_1(1260)^+)/\Gamma_{\text{total}}$ Γ_{50}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.0060±0.0022±0.0024	[1] BORTOLETTO	92	CLEO	$e^+ e^- \to \Upsilon(4S)$

[1] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

$\Gamma(D^*(2010)^- \pi^+ \pi^0)/\Gamma_{\text{total}}$ Γ_{51}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0152±0.0052±0.0001	51	[1] ALBRECHT	90J	ARG	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

0.015 ±0.008 ±0.008	8	[2] ALBRECHT 87C	ARG	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 90J reports 0.018 ± 0.004 ± 0.005 from a measurement of $[\Gamma(B^0 \to D^*(2010)^-\pi^+\pi^0)/\Gamma_{\text{total}}] \times [B(D^*(2010)^+ \to D^0\pi^+)]$ assuming $B(D^*(2010)^+ \to D^0\pi^+) = 0.57 \pm 0.06$, which we rescale to our best value $B(D^*(2010)^+ \to D^0\pi^+) = (67.7 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

[2] ALBRECHT 87C use PDG 86 branching ratios for D and $D^*(2010)$ and assume $B(\Upsilon(4S) \to B^+B^-) = 55\%$ and $B(\Upsilon(4S) \to B^0\overline{B}^0) = 45\%$. Superseded by ALBRECHT 90J.

$\Gamma(D^*(2010)^-\rho^+)/\Gamma_{\text{total}}$ Γ_{52}/Γ

VALUE (units 10^{-3})	*EVTS*	*DOCUMENT ID*	*TECN*	*COMMENT*
6.8 ± 0.9 OUR AVERAGE				
6.8 ± 0.3 ± 0.9		[1,2] CSORNA 03	CLE2	$e^+e^- \to \Upsilon(4S)$
16.0 ±11.3 ± 0.1		[3] BORTOLETTO 92	CLEO	$e^+e^- \to \Upsilon(4S)$
5.89± 3.52± 0.04	19	[4] ALBRECHT 90J	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
		[2,5] MATVIENKO 15	BELL	$e^+e^- \to \Upsilon(4S)$
7.4 ± 1.0 ± 1.4	76	[6,7] ALAM 94	CLE2	$e^+e^- \to \Upsilon(4S)$
81 ±29 $^{+59}_{-24}$	19	[8] CHEN 85	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] The second error combines the systematic and theoretical uncertainties in quadrature. CSORNA 03 includes data used in ALAM 94. A full angular fit to three complex helicity amplitudes is performed.

[2] Assumes equal production of B^0 and B^+ at the $\Upsilon(4S)$ resonance.

[3] BORTOLETTO 92 reports 0.019 ± 0.008 ± 0.011 from a measurement of $[\Gamma(B^0 \to D^*(2010)^-\rho^+)/\Gamma_{\text{total}}] \times [B(D^*(2010)^+ \to D^0\pi^+)]$ assuming $B(D^*(2010)^+ \to D^0\pi^+) = 0.57 \pm 0.06$, which we rescale to our best value $B(D^*(2010)^+ \to D^0\pi^+) = (67.7 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

[4] ALBRECHT 90J reports 0.007 ± 0.003 ± 0.003 from a measurement of $[\Gamma(B^0 \to D^*(2010)^-\rho^+)/\Gamma_{\text{total}}] \times [B(D^*(2010)^+ \to D^0\pi^+)]$ assuming $B(D^*(2010)^+ \to D^0\pi^+) = 0.57 \pm 0.06$, which we rescale to our best value $B(D^*(2010)^+ \to D^0\pi^+) = (67.7 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

[5] MATVIENKO 15 reports $B(B^0 \to D^*(2010)^-\rho^+,\ \rho^+ \to \omega\pi^+) = (1.48 \pm 0.27^{+0.15}_{-0.09}{}^{+0.21}_{-0.56}) \times 10^{-3}$. The last uncertainty is a model one.

[6] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II $B(D^*(2010)^+ \to D^0\pi^+)$ and absolute $B(D^0 \to K^-\pi^+)$ and the PDG 1992 $B(D^0 \to K^-\pi^+\pi^0)/B(D^0 \to K^-\pi^+)$ and $B(D^0 \to K^-2\pi^+\pi^-)/B(D^0 \to K^-\pi^+)$.

[7] This decay is nearly completely longitudinally polarized, $\Gamma_L/\Gamma = (93 \pm 5 \pm 5)\%$, as expected from the factorization hypothesis (ROSNER 90). The nonresonant $\pi^+\pi^0$ contribution under the ρ^+ is less than 9% at 90% CL.

[8] Uses $B(D^* \to D^0\pi^+) = 0.6 \pm 0.15$ and $B(\Upsilon(4S) \to B^0\overline{B}^0) = 0.4$. Does not depend on D branching ratios.

$\Gamma\big(D^*(2010)^- K^+\big)/\Gamma_{\text{total}}$ Γ_{53}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.12±0.15 OUR AVERAGE				
2.12±0.12±0.10	[1] AUBERT	06A	BABR	$e^+e^- \to \Upsilon(4S)$
2.0 ±0.4 ±0.1	[2] ABE	01I	BELL	$e^+e^- \to \Upsilon(4S)$

[1] AUBERT 06A reports $[\Gamma\big(B^0 \to D^*(2010)^- K^+\big)/\Gamma_{\text{total}}]$ / $[B(B^0 \to D^*(2010)^- \pi^+)]$ = 0.0776 ± 0.0034 ± 0.0029 which we multiply by our best value $B(B^0 \to D^*(2010)^- \pi^+) = (2.74 \pm 0.13) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] ABE 01I reports $[\Gamma\big(B^0 \to D^*(2010)^- K^+\big)/\Gamma_{\text{total}}]$ / $[B(B^0 \to D^*(2010)^- \pi^+)]$ = 0.074 ± 0.015 ± 0.006 which we multiply by our best value $B(B^0 \to D^*(2010)^- \pi^+) = (2.74 \pm 0.13) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma\big(D^*(2010)^- K^+\big)/\Gamma\big(D^*(2010)^- \pi^+\big)$ Γ_{53}/Γ_{45}

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$(7.76\pm0.34\pm0.26) \times 10^{-2}$	AAIJ	13AO	LHCB	pp at 7 TeV

$\Gamma\big(D^*(2010)^- K^0 \pi^+\big)/\Gamma_{\text{total}}$ Γ_{54}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
3.0±0.7±0.3	[1] AUBERT,BE	05B	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(D^*(2010)^- K^*(892)^+\big)/\Gamma_{\text{total}}$ Γ_{55}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
3.3±0.6 OUR AVERAGE				
3.2±0.6±0.3	[1] AUBERT,BE	05B	BABR	$e^+e^- \to \Upsilon(4S)$
3.8±1.3±0.8	[2] MAHAPATRA	02	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and an unpolarized final state.

$\Gamma\big(D^*(2010)^- K^+ \overline{K}^0\big)/\Gamma_{\text{total}}$ Γ_{56}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<4.7	90	[1] DRUTSKOY	02	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(D^*(2010)^- K^+ \overline{K}^*(892)^0\big)/\Gamma_{\text{total}}$ Γ_{57}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
12.9±2.2±2.5	[1] DRUTSKOY	02	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(D^*(2010)^- \pi^+ \pi^+ \pi^-\big)/\Gamma_{\text{total}}$ Γ_{58}/Γ

VALUE (units 10^{-3})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
7.21±0.29 OUR AVERAGE					
7.26±0.11± 0.31		[1] LEES	16H	BABR	$e^+e^- \to \Upsilon(4S)$
6.81±0.23± 0.72		[2] MAJUMDER	04	BELL	$e^+e^- \to \Upsilon(4S)$
6.3 ±1.0 ± 1.1		[3,4] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$

13.4 ±3.6 ± 0.1		[5] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
10.1 ±4.1 ± 0.1		[6] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

33 ±9 ±16		[7] ALBRECHT	87C	ARG	$e^+e^- \to \Upsilon(4S)$
<42	90	[8] BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] Assumes B($\Upsilon(4S) \to B^0\overline{B}^0$) = 0.486 ± 0.006.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II B($D^*(2010)^+ \to D^0\pi^+$) and absolute B($D^0 \to K^-\pi^+$) and the PDG 1992 B($D^0 \to K^-\pi^+\pi^0$)/B($D^0 \to K^-\pi^+$) and B($D^0 \to K^-2\pi^+\pi^-$)/B($D^0 \to K^-\pi^+$).

[4] The three pion mass is required to be between 1.0 and 1.6 GeV consistent with an a_1 meson. (If this channel is dominated by a_1^+, the branching ratio for $\overline{D}^{*-}a_1^+$ is twice that for $\overline{D}^{*-}\pi^+\pi^+\pi^-$.)

[5] BORTOLETTO 92 reports 0.0159 ± 0.0028 ± 0.0037 from a measurement of $[\Gamma(B^0 \to D^*(2010)^-\pi^+\pi^+\pi^-)/\Gamma_{\text{total}}] \times [B(D^*(2010)^+ \to D^0\pi^+)]$ assuming B($D^*(2010)^+ \to D^0\pi^+$) = 0.57 ± 0.06, which we rescale to our best value B($D^*(2010)^+ \to D^0\pi^+$) = $(67.7 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

[6] ALBRECHT 90J reports 0.012 ± 0.003 ± 0.004 from a measurement of $[\Gamma(B^0 \to D^*(2010)^-\pi^+\pi^+\pi^-)/\Gamma_{\text{total}}] \times [B(D^*(2010)^+ \to D^0\pi^+)]$ assuming B($D^*(2010)^+ \to D^0\pi^+$) = 0.57 ± 0.06, which we rescale to our best value B($D^*(2010)^+ \to D^0\pi^+$) = $(67.7 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

[7] ALBRECHT 87C use PDG 86 branching ratios for D and $D^*(2010)$ and assume B($\Upsilon(4S) \to B^+B^-$) = 55% and B($\Upsilon(4S) \to B^0\overline{B}^0$) = 45%. Superseded by ALBRECHT 90J.

[8] BEBEK 87 value has been updated in BERKELMAN 91 to use same assumptions as noted for BORTOLETTO 92.

$\Gamma((D^*(2010)^-\pi^+\pi^+\pi^-)\text{ nonresonant})/\Gamma_{\text{total}}$ Γ_{59}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.0000±0.0019±0.0016	[1] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D and $D^*(2010)$.

$\Gamma(D^*(2010)^-\pi^+\rho^0)/\Gamma_{\text{total}}$ Γ_{60}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.00573±0.00317±0.00004	[1] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] BORTOLETTO 92 reports 0.0068 ± 0.0032 ± 0.0021 from a measurement of $[\Gamma(B^0 \to D^*(2010)^-\pi^+\rho^0)/\Gamma_{\text{total}}] \times [B(D^*(2010)^+ \to D^0\pi^+)]$ assuming B($D^*(2010)^+ \to D^0\pi^+$) = 0.57 ± 0.06, which we rescale to our best value B($D^*(2010)^+ \to D^0\pi^+$) = $(67.7 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

$\Gamma(D^*(2010)^- a_1(1260)^+)/\Gamma_{\text{total}}$ Γ_{61}/Γ

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.0130±0.0027 OUR AVERAGE			
0.0126±0.0020±0.0022	[1,2] ALAM 94	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
0.0152±0.0070±0.0001	[3] BORTOLETTO 92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[1] ALAM 94 value is twice their $\Gamma(D^*(2010)^-\pi^+\pi^+\pi^-)/\Gamma_{\text{total}}$ value based on their observation that the three pions are dominantly in the $a_1(1260)$ mass range 1.0 to 1.6 GeV.

[2] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II $\text{B}(D^*(2010)^+ \rightarrow D^0\pi^+)$ and absolute $\text{B}(D^0 \rightarrow K^-\pi^+)$ and the PDG 1992 $\text{B}(D^0 \rightarrow K^-\pi^+\pi^0)/\text{B}(D^0 \rightarrow K^-\pi^+)$ and $\text{B}(D^0 \rightarrow K^-2\pi^+\pi^-)/\text{B}(D^0 \rightarrow K^-\pi^+)$.

[3] BORTOLETTO 92 reports $0.018 \pm 0.006 \pm 0.006$ from a measurement of $[\Gamma(B^0 \rightarrow D^*(2010)^- a_1(1260)^+)/\Gamma_{\text{total}}] \times [\text{B}(D^*(2010)^+ \rightarrow D^0\pi^+)]$ assuming $\text{B}(D^*(2010)^+ \rightarrow D^0\pi^+) = 0.57 \pm 0.06$, which we rescale to our best value $\text{B}(D^*(2010)^+ \rightarrow D^0\pi^+) = (67.7 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

$\Gamma(\overline{D}_1(2420)^0\pi^-\pi^+,\ \overline{D}_1^0 \rightarrow D^{*-}\pi^+)/\Gamma(D^*(2010)^-\pi^+\pi^+\pi^-)$ Γ_{62}/Γ_{58}

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$(2.04\pm0.42\pm0.22) \times 10^{-2}$	AAIJ 13AO	LHCB	pp at 7 TeV

$\Gamma(D^*(2010)^- K^+\pi^-\pi^+)/\Gamma(D^*(2010)^-\pi^+\pi^+\pi^-)$ Γ_{63}/Γ_{58}

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$(6.47\pm0.37\pm0.35) \times 10^{-2}$	AAIJ 13AO	LHCB	pp at 7 TeV

$\Gamma(D^*(2010)^-\pi^+\pi^+\pi^-\pi^0)/\Gamma_{\text{total}}$ Γ_{64}/Γ

VALUE	*EVTS*	*DOCUMENT ID*	*TECN*	*COMMENT*
0.0176±0.0027 OUR AVERAGE				
0.0172±0.0014±0.0024		[1] ALEXANDER 01B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
0.0345±0.0181±0.0003	28	[2] ALBRECHT 90J	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. The signal is consistent with all observed $\omega\pi^+$ having proceeded through the ρ'^+ resonance at mass $1349 \pm 25^{+10}_{-\ 5}$ MeV and width $547 \pm 86^{+46}_{-45}$ MeV.

[2] ALBRECHT 90J reports $0.041 \pm 0.015 \pm 0.016$ from a measurement of $[\Gamma(B^0 \rightarrow D^*(2010)^-\pi^+\pi^+\pi^-\pi^0)/\Gamma_{\text{total}}] \times [\text{B}(D^*(2010)^+ \rightarrow D^0\pi^+)]$ assuming $\text{B}(D^*(2010)^+ \rightarrow D^0\pi^+) = 0.57 \pm 0.06$, which we rescale to our best value $\text{B}(D^*(2010)^+ \rightarrow D^0\pi^+) = (67.7 \pm 0.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

$\Gamma(D^{*-}3\pi^+2\pi^-)/\Gamma_{\text{total}}$ Γ_{65}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*	*TECN*	*COMMENT*
4.72±0.59±0.71	[1] MAJUMDER 04	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(D^*(2010)^- \omega\pi^+\big)/\Gamma_{\text{total}}$ Γ_{66}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.46±0.18 OUR AVERAGE Error includes scale factor of 1.2.				
2.31±0.11±0.14	[1] MATVIENKO	15	BELL	$e^+e^- \to \Upsilon(4S)$
2.88±0.21±0.31	[1] AUBERT	06L	BABR	$e^+e^- \to \Upsilon(4S)$
2.9 ±0.3 ±0.4	[1,2] ALEXANDER	01B	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] The signal is consistent with all observed $\omega\pi^+$ having proceeded through the ρ'^+ resonance at mass 1349 ± 25^{+10}_{-5} MeV and width 547 ± 86^{+46}_{-45} MeV.

$\Gamma\big(\overline{D}_1(2430)^0\omega,\ \overline{D}{}_1^0 \to D^{*-}\pi^+\big)/\Gamma_{\text{total}}$ Γ_{67}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
$2.7^{+0.8}_{-0.4}$ OUR AVERAGE				
$2.5\pm0.4^{+0.8}_{-0.2}$	[1,2] MATVIENKO	15	BELL	$e^+e^- \to \Upsilon(4S)$
4.1±1.2±1.1	[3] AUBERT	06L	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0.

[2] The measurement is obtained by amplitude analysis of $B^0 \to D^{*-}\omega\pi^+$. The second uncertainty combines in quadrature experimental systematic and model uncertainties.

[3] Obtained by fitting the events with cos $\theta_{D^*} < 0.5$ and scaling up the result by a factor of 4/3. No interference effects between $B^0 \to D'_1\omega$ and $D^*\omega\pi$ are assumed.

$\Gamma\big(D^{*-}\rho(1450)^+,\ \rho^+ \to \omega\pi^+\big)/\Gamma_{\text{total}}$ Γ_{68}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{1.07^{+0.15+0.40}_{-0.31-0.13}}$	[1,2] MATVIENKO	15	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Obtained by amplitude analysis of $\overline{B}{}^0 \to D^{*-}\omega\pi^+$. The second uncertainty combines in qudrature experimental systematic and model uncertainties.

[2] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$.

$\Gamma\big(\overline{D}_1(2420)^0\omega,\ \overline{D}{}_1^0 \to D^{*-}\pi^+\big)/\Gamma_{\text{total}}$ Γ_{69}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
0.7±0.2±0.1	[1,2] MATVIENKO	15	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Obtained by amplitude analysis of $\overline{B}{}^0 \to D^{*-}\omega\pi^+$. The second uncertainty combines in qudrature experimental systematic and model uncertainties.

[2] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$.

$\Gamma\big(\overline{D}{}_2^*(2460)^0\omega,\ \overline{D}{}_2^0 \to D^{*-}\pi^+\big)/\Gamma_{\text{total}}$ Γ_{70}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
0.4±0.1±0.1	[1,2] MATVIENKO	15	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Obtained by amplitude analysis of $\overline{B}{}^0 \to D^{*-}\omega\pi^+$. The second uncertainty combines in qudrature experimental systematic and model uncertainties.

[2] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$.

$\Gamma\left(D^{*-} b_1(1235)^+,\ b_1^+ \to \omega\pi^+\right)/\Gamma_{\text{total}}$ Γ_{71}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<0.7 \times 10^{-4}$	90	[1] MATVIENKO 15	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$.

$\Gamma\left(\overline{D}^{**-}\pi^+\right)/\Gamma_{\text{total}}$ Γ_{72}/Γ

D^{**-} represents an excited state with mass 2.2 < M < 2.8 GeV/c^2.

VALUE (units 10^{-3})	*DOCUMENT ID*	*TECN*	*COMMENT*
1.9±0.9±0.1	[1,2] AUBERT,BE 06J	BABR	$e^+e^- \to \Upsilon(4S)$

[1] AUBERT,BE 06J reports $[\Gamma(B^0 \to \overline{D}^{**-}\pi^+)/\Gamma_{\text{total}}] / [B(B^0 \to D^-\pi^+)] = 0.77 \pm 0.22 \pm 0.29$ which we multiply by our best value $B(B^0 \to D^-\pi^+) = (2.51 \pm 0.08) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Uses a missing-mass method. Does not depend on D branching fractions or B^+/B^0 production rates.

$\Gamma\left(D_1(2420)^-\pi^+,\ D_1^- \to D^-\pi^+\pi^-\right)/\Gamma_{\text{total}}$ Γ_{73}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.99^{+0.20}_{-0.25}$ OUR FIT			
$0.89 \pm 0.15^{+0.17}_{-0.32}$	[1] ABE 05A	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\left(D_1(2420)^-\pi^+,\ D_1^- \to D^-\pi^+\pi^-\right)/\Gamma\left(D^-\pi^+\pi^+\pi^-\right)$ Γ_{73}/Γ_{47}

VALUE (units 10^{-2})	*DOCUMENT ID*	*TECN*	*COMMENT*
1.7±0.4 OUR FIT			
$2.1 \pm 0.5^{+0.3}_{-0.5}$	AAIJ 11E	LHCB	pp at 7 TeV

$\Gamma\left(D_1(2420)^-\pi^+,\ D_1^- \to D^{*-}\pi^+\pi^-\right)/\Gamma_{\text{total}}$ Γ_{74}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<0.33	90	[1] ABE 05A	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\left(D^*(2010)^-\pi^+\pi^+\pi^-\right)/\Gamma\left(D^*(2010)^-\pi^+\right)$ Γ_{58}/Γ_{45}

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
2.64±0.04±0.13	AAIJ 13AO	LHCB	pp at 7 TeV

$\Gamma\left(\overline{D}_2^*(2460)^-\pi^+,\ D_2^{*-} \to D^0\pi^-\right)/\Gamma_{\text{total}}$ Γ_{75}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
2.38±0.16 OUR AVERAGE				
2.44±0.07±0.16		[1] AAIJ 15Y	LHCB	pp at 7, 8 TeV
2.15±0.17±0.31		[2,3] KUZMIN 07	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<14.7	90	[2] ALAM 94	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Result obtained using the isobar formalism. The second uncertainty combines in quadrature all systematic uncertainties quoted in the paper.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] Our second uncertainty combines systematics and model errors quoted in the paper.

$\Gamma(\overline{D}{}_0^*(2400)^-\pi^+,\ D_0^{*-}\to D^0\pi^-)/\Gamma_{\text{total}}$ Γ_{76}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
0.76±0.08 OUR AVERAGE				
0.77±0.05±0.06	[1] AAIJ	15Y	LHCB	pp at 7, 8 TeV
0.60±0.13±0.27	[2,3] KUZMIN	07	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Result obtained using the isobar formalism. The second uncertainty combines in quadrature all systematic uncertainties quoted in the paper.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] Our second uncertainty combines systematics and model errors quoted in the paper.

$\Gamma(D_2^*(2460)^-\pi^+,\ D_2^{*-}\to D^{*-}\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{77}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.24	90	[1] ABE	05A	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{D}{}_2^*(2460)^-\rho^+)/\Gamma_{\text{total}}$ Γ_{78}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.0049	90	[1] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] ALAM 94 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II absolute B($D^0 \to K^-\pi^+$) and B($D_2^*(2460)^+ \to D^0\pi^+$) = 30%.

$\Gamma(D^0\overline{D}{}^0)/\Gamma_{\text{total}}$ Γ_{79}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.14±0.06±0.03		[1] AAIJ	13AP	LHCB	pp at 7 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.43	90	[2] ADACHI	08	BELL	$e^+e^- \to \Upsilon(4S)$
<0.6	90	[2] AUBERT,B	06A	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses B($B^0 \to D^-D^+$) = $(2.11 \pm 0.31) \times 10^{-4}$ and B($B^+ \to \overline{D}{}^0 D_s^+$) = $(10.1 \pm 1.7) \times 10^{-3}$.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^{*0}\overline{D}{}^0)/\Gamma_{\text{total}}$ Γ_{80}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<2.9	90	[1] AUBERT,B	06A	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^-D^+)/\Gamma_{\text{total}}$ Γ_{81}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.11±0.18 OUR AVERAGE					
2.12±0.16±0.18		[1] ROHRKEN	12	BELL	$e^+e^- \to \Upsilon(4S)$
1.97±0.20±0.20		[1] FRATINA	07	BELL	$e^+e^- \to \Upsilon(4S)$
2.8 ±0.4 ±0.5		[1] AUBERT,B	06A	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.91±0.51±0.30		[1] MAJUMDER	05	BELL	Repl. by FRATINA 07
< 9.4	90	[1] LIPELES	00	CLE2	$e^+e^- \to \Upsilon(4S)$
<59	90	BARATE	98Q	ALEP	$e^+e^- \to Z$
<12	90	ASNER	97	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^{\pm} D^{*\mp}(CP\text{-averaged}))/\Gamma_{\text{total}}$ Γ_{82}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
6.14±0.29±0.50	[1] ROHRKEN	12	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^- D_s^+)/\Gamma_{\text{total}}$ Γ_{83}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0072±0.0008 OUR AVERAGE					
0.0073±0.0004±0.0007		[1] ZUPANC	07	BELL	$e^+e^- \to \Upsilon(4S)$
0.0066±0.0014±0.0006		[2] AUBERT	06N	BABR	$e^+e^- \to \Upsilon(4S)$
0.0068±0.0024±0.0006		[3] GIBAUT	96	CLE2	$e^+e^- \to \Upsilon(4S)$
0.010 ±0.009 ±0.001		[4] ALBRECHT	92G	ARG	$e^+e^- \to \Upsilon(4S)$
0.0053±0.0030±0.0005		[5] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.012 ±0.007	3	[6] BORTOLETTO	90	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] ZUPANC 07 reports $(7.5\pm0.2\pm1.1)\times10^{-3}$ from a measurement of $[\Gamma(B^0 \to D^- D_s^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = (4.4 \pm 0.6) \times 10^{-2}$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] AUBERT 06N reports $(0.64 \pm 0.13 \pm 0.10) \times 10^{-2}$ from a measurement of $[\Gamma(B^0 \to D^- D_s^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.0462 \pm 0.0062$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] GIBAUT 96 reports $0.0087 \pm 0.0024 \pm 0.0020$ from a measurement of $[\Gamma(B^0 \to D^- D_s^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.035$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] ALBRECHT 92G reports $0.017 \pm 0.013 \pm 0.006$ from a measurement of $[\Gamma(B^0 \to D^- D_s^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.027$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes PDG 1990 D^+ branching ratios, e.g., $B(D^+ \to K^- 2\pi^+) = 7.7 \pm 1.0\%$.

[5] BORTOLETTO 92 reports $0.0080 \pm 0.0045 \pm 0.0030$ from a measurement of $[\Gamma(B^0 \to D^- D_s^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.030 \pm 0.011$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

[6] BORTOLETTO 90 assume $B(D_s \to \phi\pi^+) = 2\%$. Superseded by BORTOLETTO 92.

$\Gamma(D^*(2010)^- D_s^+)/\Gamma_{\text{total}}$ Γ_{84}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0080±0.0011 OUR AVERAGE					
0.0073±0.0013±0.0007		[1] AUBERT	06N	BABR	$e^+e^- \to \Upsilon(4S)$
0.0083±0.0015±0.0007		[2] AUBERT	03I	BABR	$e^+e^- \to \Upsilon(4S)$
0.0088±0.0017±0.0008		[3] AHMED	00B	CLE2	$e^+e^- \to \Upsilon(4S)$
0.008 ±0.006 ±0.001		[4] ALBRECHT	92G	ARG	$e^+e^- \to \Upsilon(4S)$
0.011 ±0.006 ±0.001		[5] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.0072±0.0022±0.0006		[6] GIBAUT	96	CLE2	Repl. by AHMED 00B
0.024 ±0.014	3	[7] BORTOLETTO	90	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] AUBERT 06N reports $(0.71 \pm 0.13 \pm 0.09) \times 10^{-2}$ from a measurement of $[\Gamma(B^0 \to D^*(2010)^- D_s^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.0462 \pm 0.0062$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] AUBERT 03I reports $0.0103 \pm 0.0014 \pm 0.0013$ from a measurement of $[\Gamma(B^0 \to D^*(2010)^- D_s^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.036$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] AHMED 00B reports $0.0110 \pm 0.0018 \pm 0.0011$ from a measurement of $[\Gamma(B^0 \to D^*(2010)^- D_s^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.036$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] ALBRECHT 92G reports $0.014 \pm 0.010 \pm 0.003$ from a measurement of $[\Gamma(B^0 \to D^*(2010)^- D_s^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.027$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes PDG 1990 D^+ and $D^*(2010)^+$ branching ratios, e.g., $B(D^0 \to K^-\pi^+) = 3.71 \pm 0.25\%$, $B(D^+ \to K^- 2\pi^+) = 7.1 \pm 1.0\%$, and $B(D^*(2010)^+ \to D^0\pi^+) = 55 \pm 4\%$.

[5] BORTOLETTO 92 reports $0.016 \pm 0.009 \pm 0.006$ from a measurement of $[\Gamma(B^0 \to D^*(2010)^- D_s^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.030 \pm 0.011$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D and $D^*(2010)$.

[6] GIBAUT 96 reports $0.0093 \pm 0.0023 \pm 0.0016$ from a measurement of $[\Gamma(B^0 \to D^*(2010)^- D_s^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.035$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[7] BORTOLETTO 90 assume $B(D_s \to \phi\pi^+) = 2\%$. Superseded by BORTOLETTO 92.

$\Gamma(D^- D_s^{*+})/\Gamma_{\text{total}}$ Γ_{85}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.0074±0.0016 OUR AVERAGE				
0.0071±0.0016±0.0006	[1] AUBERT	06N	BABR	$e^+e^- \to \Upsilon(4S)$
0.0078±0.0032±0.0007	[2] GIBAUT	96	CLE2	$e^+e^- \to \Upsilon(4S)$
0.016 ±0.012 ±0.001	[3] ALBRECHT	92G	ARG	$e^+e^- \to \Upsilon(4S)$

[1] AUBERT 06N reports $(0.69 \pm 0.16 \pm 0.09) \times 10^{-2}$ from a measurement of $[\Gamma(B^0 \to D^- D_s^{*+})/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.0462 \pm 0.0062$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] GIBAUT 96 reports $0.0100 \pm 0.0035 \pm 0.0022$ from a measurement of $[\Gamma(B^0 \to D^- D_s^{*+})/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.035$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] ALBRECHT 92G reports $0.027 \pm 0.017 \pm 0.009$ from a measurement of $[\Gamma(B^0 \to D^- D_s^{*+})/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.027$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes PDG 1990 D^+ branching ratios, e.g., $B(D^+ \to K^- 2\pi^+) = 7.7 \pm 1.0\%$.

$\Gamma(D^*(2010)^- D_s^{*+})/\Gamma_{\text{total}}$ Γ_{86}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.0177±0.0014 OUR AVERAGE				
0.0173±0.0018±0.0015	[1] AUBERT	06N	BABR	$e^+e^- \to \Upsilon(4S)$
0.0188±0.0009±0.0017	[2] AUBERT	05V	BABR	$e^+e^- \to \Upsilon(4S)$
0.0158±0.0027±0.0014	[3] AUBERT	03I	BABR	$e^+e^- \to \Upsilon(4S)$
0.015 ±0.004 ±0.001	[4] AHMED	00B	CLE2	$e^+e^- \to \Upsilon(4S)$
0.016 ±0.009 ±0.001	[5] ALBRECHT	92G	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.016 ±0.005 ±0.001	[6] GIBAUT	96	CLE2	Repl. by AHMED 00B

[1] AUBERT 06N reports $(1.68 \pm 0.21 \pm 0.19) \times 10^{-2}$ from a measurement of $[\Gamma(B^0 \to D^*(2010)^- D_s^{*+})/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.0462 \pm 0.0062$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] A partial reconstruction technique is used and the result is independent of the particle decay rate of D_S^+ meson. It also provides a model-independent determination of $B(D_S^+ \to \phi\pi^+) = (4.81 \pm 0.52 \pm 0.38)\%$.

[3] AUBERT 03I reports $0.0197 \pm 0.0015 \pm 0.0030$ from a measurement of $[\Gamma(B^0 \to D^*(2010)^- D_s^{*+})/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.036$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] AHMED 00B reports $0.0182 \pm 0.0037 \pm 0.0025$ from a measurement of $[\Gamma(B^0 \to D^*(2010)^- D_s^{*+})/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.036$,

which we rescale to our best value B($D_s^+ \to \phi\pi^+$) = (4.5 ± 0.4) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[5] ALBRECHT 92G reports 0.026 ± 0.014 ± 0.006 from a measurement of [$\Gamma(B^0 \to D^*(2010)^- D_s^{*+})/\Gamma_{\text{total}}$] × [B($D_s^+ \to \phi\pi^+$)] assuming B($D_s^+ \to \phi\pi^+$) = 0.027, which we rescale to our best value B($D_s^+ \to \phi\pi^+$) = (4.5 ± 0.4) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes PDG 1990 D^+ and $D^*(2010)^+$ branching ratios, e.g., B($D^0 \to K^-\pi^+$) = 3.71 ± 0.25%, B($D^+ \to K^- 2\pi^+$) = 7.1 ± 1.0%, and B($D^*(2010)^+ \to D^0\pi^+$) = 55 ± 4%.

[6] GIBAUT 96 reports 0.0203 ± 0.0050 ± 0.0036 from a measurement of [$\Gamma(B^0 \to D^*(2010)^- D_s^{*+})/\Gamma_{\text{total}}$] × [B($D_s^+ \to \phi\pi^+$)] assuming B($D_s^+ \to \phi\pi^+$) = 0.035, which we rescale to our best value B($D_s^+ \to \phi\pi^+$) = (4.5 ± 0.4) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(D^*(2010)^- D_s^{*+})/\Gamma(D^*(2010)^- D_s^+)$ Γ_{86}/Γ_{84}

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
2.19±0.08±0.02	[1] AAIJ	21S	LHCB	pp at 13 TeV

[1] AAIJ 21S reports [$\Gamma(B^0 \to D^*(2010)^- D_s^{*+})/\Gamma(B^0 \to D^*(2010)^- D_s^+)$] × [B($D_s^{*+} \to D_s^+\gamma$)] = 2.045 ± 0.022 ± 0.071 which we divide by our best value B($D_s^{*+} \to D_s^+\gamma$) = (93.5 ± 0.7) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$[\Gamma(D^*(2010)^- D_s^+) + \Gamma(D^*(2010)^- D_s^{*+})]/\Gamma_{\text{total}}$ $(\Gamma_{84}+\Gamma_{86})/\Gamma$

VALUE (units 10^{-2})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.5 ±0.4 OUR AVERAGE					
2.40±0.35±0.22		[1] AUBERT	03I	BABR	$e^+e^- \to \Upsilon(4S)$
3.3 ±0.9 ±0.3	22	[2] BORTOLETTO	90	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] AUBERT 03I reports (3.00 ± 0.19 ± 0.39) × 10^{-2} from a measurement of [$[\Gamma(B^0 \to D^*(2010)^- D_s^+) + \Gamma(B^0 \to D^*(2010)^- D_s^{*+})]/\Gamma_{\text{total}}$] × [B($D_s^+ \to \phi\pi^+$)] assuming B($D_s^+ \to \phi\pi^+$) = 0.036, which we rescale to our best value B($D_s^+ \to \phi\pi^+$) = (4.5 ± 0.4) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] BORTOLETTO 90 reports (7.5 ± 2.0) × 10^{-2} from a measurement of [$[\Gamma(B^0 \to D^*(2010)^- D_s^+) + \Gamma(B^0 \to D^*(2010)^- D_s^{*+})]/\Gamma_{\text{total}}$] × [B($D_s^+ \to \phi\pi^+$)] assuming B($D_s^+ \to \phi\pi^+$) = 0.02, which we rescale to our best value B($D_s^+ \to \phi\pi^+$) = (4.5 ± 0.4) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(D_{s0}(2317)^- K^+,\ D_{s0}^- \to D_s^-\pi^0)/\Gamma_{\text{total}}$ Γ_{87}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
$4.2^{+1.4}_{-1.3}$±0.4	[1] DRUTSKOY	05	BELL	$e^+e^- \to \Upsilon(4S)$

[1] DRUTSKOY 05 reports ($5.3^{+1.5}_{-1.3}$ ± 1.6) × 10^{-5} from a measurement of [$\Gamma(B^0 \to D_{s0}(2317)^- K^+,\ D_{s0}^- \to D_s^-\pi^0)/\Gamma_{\text{total}}$] × [B($D_s^+ \to \phi\pi^+$)] assuming B($D_s^+ \to$

$\phi\pi^+$) = 0.036 ± 0.009, which we rescale to our best value B($D_s^+ \to \phi\pi^+$) = (4.5 ± 0.4) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(D_{s0}(2317)^-\pi^+,\ D_{s0}^- \to D_s^-\pi^0)/\Gamma_{\text{total}}$ Γ_{88}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<2.5	90	[1] DRUTSKOY	05	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D_{sJ}(2457)^-K^+,\ D_{sJ}^- \to D_s^-\pi^0)/\Gamma_{\text{total}}$ Γ_{89}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.94	90	[1] DRUTSKOY	05	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D_{sJ}(2457)^-\pi^+,\ D_{sJ}^- \to D_s^-\pi^0)/\Gamma_{\text{total}}$ Γ_{90}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.40	90	[1] DRUTSKOY	05	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D_s^-D_s^+)/\Gamma_{\text{total}}$ Γ_{91}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
< 3.6 × 10^{-5}	90	[1] ZUPANC	07	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<10 × 10^{-5}	90	[1] AUBERT,BE	05F	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D_s^{*-}D_s^+)/\Gamma_{\text{total}}$ Γ_{92}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.3 × 10^{-4}	90	[1] AUBERT,BE	05F	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D_s^{*-}D_s^{*+})/\Gamma_{\text{total}}$ Γ_{93}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<2.4 × 10^{-4}	90	[1] AUBERT,BE	05F	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D_{s0}^*(2317)^+D^-,\ D_{s0}^{*+} \to D_s^+\pi^0)/\Gamma_{\text{total}}$ Γ_{94}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.06±0.16 OUR AVERAGE	Error includes scale factor of 1.1.			
$1.00^{+0.16}_{-0.15}\pm0.03$	[1,2] CHOI	15A	BELL	$e^+e^- \to \Upsilon(4S)$
$1.4\ ^{+0.5}_{-0.4}\ \pm0.1$	[2,3] AUBERT,B	04S	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$0.69^{+0.29}_{-0.24}\pm0.06$	[2,4] KROKOVNY	03B	BELL	Repl. by CHOI 15A

[1] CHOI 15A reports $(10.2^{+1.3}_{-1.2} \pm 1.0 \pm 0.4) \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \to D^*_{s0}(2317)^+ D^-,\ D^{*+}_{s0} \to D^+_s \pi^0)/\Gamma_{\text{total}}] \times [B(D^+_s \to K^+ K^- \pi^+)] \times [B(D^+ \to K^- 2\pi^+)]$ assuming $B(D^+_s \to K^+ K^- \pi^+) = (5.39 \pm 0.21) \times 10^{-2}$,$B(D^+ \to K^- 2\pi^+) = (9.13 \pm 0.19) \times 10^{-2}$, which we rescale to our best values $B(D^+_s \to K^+ K^- \pi^+) = (5.37 \pm 0.10) \times 10^{-2}$, $B(D^+ \to K^- 2\pi^+) = (9.38 \pm 0.16) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] AUBERT,B 04S reports $(1.8 \pm 0.4^{+0.7}_{-0.5}) \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to D^*_{s0}(2317)^+ D^-,\ D^{*+}_{s0} \to D^+_s \pi^0)/\Gamma_{\text{total}}] \times [B(D^+_s \to \phi\pi^+)]$ assuming $B(D^+_s \to \phi\pi^+) = 0.036 \pm 0.009$, which we rescale to our best value $B(D^+_s \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] KROKOVNY 03B reports $(0.86^{+0.33}_{-0.26} \pm 0.26) \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to D^*_{s0}(2317)^+ D^-,\ D^{*+}_{s0} \to D^+_s \pi^0)/\Gamma_{\text{total}}] \times [B(D^+_s \to \phi\pi^+)]$ assuming $B(D^+_s \to \phi\pi^+) = 0.036 \pm 0.009$, which we rescale to our best value $B(D^+_s \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(D_{s0}(2317)^+ D^-,\ D^+_{s0} \to D^{*+}_s \gamma)/\Gamma_{\text{total}}$ $\qquad\Gamma_{95}/\Gamma$

VALUE (units 10^{-3})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.95	90	[1] KROKOVNY	03B	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D_{s0}(2317)^+ D^*(2010)^-,\ D^+_{s0} \to D^+_s \pi^0)/\Gamma_{\text{total}}$ $\qquad\Gamma_{96}/\Gamma$

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{1.5\pm0.4^{+0.5}_{-0.4}}$	[1] AUBERT,B	04S	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D_{sJ}(2457)^+ D^-)/\Gamma_{\text{total}}$ $\qquad\Gamma_{97}/\Gamma$

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
3.5±1.1 OUR AVERAGE				
$2.6\pm1.5\pm0.7$	[1] AUBERT	06N	BABR	$e^+ e^- \to \Upsilon(4S)$
$4.8^{+2.2}_{-1.6}\pm1.1$	[2,3] AUBERT,B	04S	BABR	$e^+ e^- \to \Upsilon(4S)$
$3.9^{+1.5}_{-1.3}\pm0.9$	[2,4] KROKOVNY	03B	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Uses a missing-mass method in the events that one of the B mesons is fully reconstructed.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] AUBERT,B 04S reports $[\Gamma(B^0 \to D_{sJ}(2457)^+ D^-)/\Gamma_{\text{total}}] \times [B(D_{s1}(2460)^+ \to D^{*+}_s \pi^0)] = (2.3^{+1.0}_{-0.7}\pm0.3)\times10^{-3}$ which we divide by our best value $B(D_{s1}(2460)^+ \to$

$D_s^{*+}\pi^0$) = $(48 \pm 11) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] KROKOVNY 03B reports $[\Gamma(B^0 \to D_{sJ}(2457)^+ D^-)/\Gamma_{\text{total}}] \times [B(D_{s1}(2460)^+ \to D_s^{*+}\pi^0)] = (1.9^{+0.7}_{-0.6} \pm 0.2) \times 10^{-3}$ which we divide by our best value $B(D_{s1}(2460)^+ \to D_s^{*+}\pi^0) = (48 \pm 11) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(D_{sJ}(2457)^+ D^-,\ D_{sJ}^+ \to D_s^+ \gamma)/\Gamma_{\text{total}}$ Γ_{98}/Γ

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
$0.65^{+0.17}_{-0.14}$ OUR AVERAGE				
$0.64^{+0.24}_{-0.16} \pm 0.06$	[1,2] AUBERT,B	04S	BABR	$e^+e^- \to \Upsilon(4S)$
$0.66^{+0.21}_{-0.19} \pm 0.06$	[1,3] KROKOVNY	03B	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] AUBERT,B 04S reports $(0.8 \pm 0.2^{+0.3}_{-0.2}) \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to D_{sJ}(2457)^+ D^-,\ D_{sJ}^+ \to D_s^+\gamma)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.036 \pm 0.009$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] KROKOVNY 03B reports $(0.82^{+0.22}_{-0.19} \pm 0.25) \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to D_{sJ}(2457)^+ D^-,\ D_{sJ}^+ \to D_s^+\gamma)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.036 \pm 0.009$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(D_{sJ}(2457)^+ D^-,\ D_{sJ}^+ \to D_s^{*+} \gamma)/\Gamma_{\text{total}}$ Γ_{99}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<0.60	90	[1] KROKOVNY	03B	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D_{sJ}(2457)^+ D^-,\ D_{sJ}^+ \to D_s^+ \pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{100}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<0.20	90	[1] KROKOVNY	03B	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D_{sJ}(2457)^+ D^-,\ D_{sJ}^+ \to D_s^+ \pi^0)/\Gamma_{\text{total}}$ Γ_{101}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<0.36	90	[1] KROKOVNY	03B	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(D^*(2010)^- D_{sJ}(2457)^+\big)/\Gamma_{\text{total}}$ Γ_{102}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*	*TECN*	*COMMENT*
9.3±2.2 OUR AVERAGE			
8.8±2.0±1.4	[1] AUBERT 06N	BABR	$e^+e^- \to \Upsilon(4S)$
$11\ ^{+5}_{-4}\ \pm 3$	[2,3] AUBERT,B 04S	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses a missing-mass method in the events that one of the B mesons is fully reconstructed.

[2] AUBERT,B 04S reports $[\Gamma(B^0 \to D^*(2010)^- D_{sJ}(2457)^+)/\Gamma_{\text{total}}] \times [B(D_{s1}(2460)^+ \to D_s^{*+}\pi^0)] = (5.5 \pm 1.2^{+2.2}_{-1.6}) \times 10^{-3}$ which we divide by our best value $B(D_{s1}(2460)^+ \to D_s^{*+}\pi^0) = (48 \pm 11) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(D_{sJ}(2457)^+ D^*(2010),\ D_{sJ}^+ \to D_s^+\gamma\big)/\Gamma_{\text{total}}$ Γ_{103}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{2.3 \pm 0.3^{+0.9}_{-0.6}}$	[1] AUBERT,B 04S	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\big[\Gamma\big(D^- D_{s1}(2536)^+,\ D_{s1}^+ \to D^{*0}K^+\big) + \Gamma\big(D^{*+}K^0\big)\big]/\Gamma_{\text{total}}$ $\Gamma_{104}/\Gamma = (\Gamma_{105}+\Gamma_{106})/\Gamma$

VALUE (units 10^{-4})	*DOCUMENT ID*	*TECN*	*COMMENT*
2.75±0.62±0.36	[1,2] AUSHEV 11	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Uses $\Gamma(D^*(2007)^0 \to D^0\pi^0)$ / $\Gamma(D^*(2007)^0 \to D^0\gamma) = 1.74 \pm 0.13$ and $\Gamma(D_{s1}(2536)^+ \to D^*(2007)^0 K^+)$ / $\Gamma(D_{s1}(2536)^+ \to D^*(2010)^+ K^0) = 1.36 \pm 0.2$.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(D^- D_{s1}(2536)^+,\ D_{s1}^+ \to D^{*0}K^+\big)/\Gamma_{\text{total}}$ Γ_{105}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
1.71±0.48±0.32		[1] AUBERT 08B	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<5	90	AUBERT 03X	BABR	Repl. by AUBERT 08B

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(D^- D_{s1}(2536)^+,\ D_{s1}^+ \to D^{*+}K^0\big)/\Gamma_{\text{total}}$ Γ_{106}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*	*TECN*	*COMMENT*
2.61±1.03±0.31	[1] AUBERT 08B	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\big[\Gamma\big(D^*(2010)^- D_{s1}(2536)^+,\ D_{s1}^+ \to D^{*0}K^+\big) + \Gamma\big(D^{*+}K^0\big)\big]/\Gamma_{\text{total}}$ $\Gamma_{107}/\Gamma = (\Gamma_{108}+\Gamma_{109})/\Gamma$

VALUE (units 10^{-4})	*DOCUMENT ID*	*TECN*	*COMMENT*
5.01±1.21±0.70	[1,2] AUSHEV 11	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Uses $\Gamma(D^*(2007)^0 \to D^0\pi^0)$ / $\Gamma(D^*(2007)^0 \to D^0\gamma) = 1.74 \pm 0.13$ and $\Gamma(D_{s1}(2536)^+ \to D^*(2007)^0 K^+)$ / $\Gamma(D_{s1}(2536)^+ \to D^*(2010)^+ K^0) = 1.36 \pm 0.2$.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^*(2010)^- D_{s1}(2536)^+,\ D_{s1}^+ \to D^{*0} K^+)/\Gamma_{\text{total}}$ Γ_{108}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
3.32±0.88±0.66		[1] AUBERT	08B	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<7	90	AUBERT	03X	BABR	Repl. by AUBERT 08B

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^{*-} D_{s1}(2536)^+,\ D_{s1}^+ \to D^{*+} K^0)/\Gamma_{\text{total}}$ Γ_{109}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
5.00±1.51±0.67	[1] AUBERT	08B	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^- D_{sJ}(2573)^+,\ D_{sJ}^+ \to D^0 K^+)/\Gamma_{\text{total}}$ Γ_{110}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
3.4±1.7±0.5		[1] LEES	15C	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<10	90	AUBERT	03X	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^*(2010)^- D_{sJ}(2573)^+,\ D_{sJ}^+ \to D^0 K^+)/\Gamma_{\text{total}}$ Γ_{111}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<2	90	AUBERT	03X	BABR	$e^+e^- \to \Upsilon(4S)$

$\Gamma(D^- D_{sJ}(2700)^+,\ D_{sJ}^+ \to D^0 K^+)/\Gamma_{\text{total}}$ Γ_{112}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
7.14±0.96±0.69	[1] LEES	15C	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^+\pi^-)/\Gamma_{\text{total}}$ Γ_{113}/Γ

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
7.3±1.2±0.2	[1,2] DAS	10	BELL	$e^+e^- \to \Upsilon(4S)$

[1] DAS 10 reports $[\Gamma(B^0 \to D^+\pi^-)/\Gamma_{\text{total}}] / [B(B^0 \to D^-\pi^+)] = (2.92 \pm 0.38 \pm 0.31) \times 10^{-4}$ which we multiply by our best value $B(B^0 \to D^-\pi^+) = (2.51 \pm 0.08) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Derived using $\tan(\theta_C)\ f_D/f_{D_s}\ \sqrt{B(B^0 \to D_s^+\pi^-)/B(B^0 \to D^-\pi^+)}$ by assuming the flavor SU(3) symmetry, where θ_C is the Cabibbo angle, f_D (f_{D_s}) is the D (D_s) meson decay constant.

$\Gamma(D_s^+\pi^-)/\Gamma_{\text{total}}$ Γ_{114}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
20.3±1.8 OUR FIT					
21.6±2.6 OUR AVERAGE					
19.9±2.6±1.8		[1] DAS	10	BELL	$e^+e^- \to \Upsilon(4S)$
25 ±4 ±2		[1] AUBERT	08AJ	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

14.0±3.5±1.3		[2] AUBERT	07K	BABR	Repl. by AUBERT 08AJ
25 ±9 ±2		[3] AUBERT	03D	BABR	Repl. by AUBERT 07K
19 $^{+9}_{-7}$ ±2		[4] KROKOVNY	02	BELL	Repl. by DAS 10
< 220	90	[5] ALEXANDER	93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
<1300	90	[6] BORTOLETTO	90	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] AUBERT 07K reports $[\Gamma(B^0 \rightarrow D_s^+\pi^-)/\Gamma_{\rm total}] \times [B(D_s^+ \rightarrow \phi\pi^+)] = (0.63 \pm 0.15 \pm 0.05) \times 10^{-6}$ which we divide by our best value $B(D_s^+ \rightarrow \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] AUBERT 03D reports $[\Gamma(B^0 \rightarrow D_s^+\pi^-)/\Gamma_{\rm total}] \times [B(D_s^+ \rightarrow \phi\pi^+)] = (1.13 \pm 0.33 \pm 0.21) \times 10^{-6}$ which we divide by our best value $B(D_s^+ \rightarrow \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] KROKOVNY 02 reports $[\Gamma(B^0 \rightarrow D_s^+\pi^-)/\Gamma_{\rm total}] \times [B(D_s^+ \rightarrow \phi\pi^+)] = (0.86^{+0.37}_{-0.30} \pm 0.11) \times 10^{-6}$ which we divide by our best value $B(D_s^+ \rightarrow \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[5] ALEXANDER 93B reports $< 270 \times 10^{-6}$ from a measurement of $[\Gamma(B^0 \rightarrow D_s^+\pi^-)/\Gamma_{\rm total}] \times [B(D_s^+ \rightarrow \phi\pi^+)]$ assuming $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$, which we rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 4.5 \times 10^{-2}$.

[6] BORTOLETTO 90 assume $B(D_s \rightarrow \phi\pi^+) = 2\%$.

$\left[\Gamma(D_s^+\pi^-)+\Gamma(D_s^-K^+)\right]/\Gamma_{\rm total}$ $(\Gamma_{114}+\Gamma_{124})/\Gamma$

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<1.0 \times 10^{-3}$	90	[1] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[1] ALBRECHT 93E reports $< 1.7 \times 10^{-3}$ from a measurement of $[\left[\Gamma(B^0 \rightarrow D_s^+\pi^-) + \Gamma(B^0 \rightarrow D_s^-K^+)\right]/\Gamma_{\rm total}] \times [B(D_s^+ \rightarrow \phi\pi^+)]$ assuming $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$, which we rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 4.5 \times 10^{-2}$.

$\Gamma(D_s^+\pi^-)/\Gamma(D^-\pi^+)$ Γ_{114}/Γ_{35}

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
8.1±0.7 OUR FIT				
7.7±0.7±0.6	AAIJ	21W	LHCB	pp at 7, 8, 13 TeV

$\Gamma(D_s^{*+}\pi^-)/\Gamma_{\rm total}$ Γ_{115}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.1 ±0.4 OUR AVERAGE		Error includes scale factor of 1.4.			
1.75±0.34±0.20		[1] JOSHI	10	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
2.6 $^{+0.5}_{-0.4}$ ±0.2		[1] AUBERT	08AJ	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$2.9 \pm 0.7 \pm 0.3$		[2] AUBERT	07K	BABR	Repl. by AUBERT 08AJ
< 4.1	90	AUBERT	03D	BABR	Repl. by AUBERT 07K
<40	90	[3] ALEXANDER	93B	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] AUBERT 07K reports $[\Gamma(B^0 \to D_s^{*+} \pi^-)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)] = (1.32 \pm 0.27 \pm 0.15) \times 10^{-6}$ which we divide by our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] ALEXANDER 93B reports $< 44 \times 10^{-5}$ from a measurement of $[\Gamma(B^0 \to D_s^{*+} \pi^-)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.037$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

$\left[\Gamma(D_s^{*+} \pi^-) + \Gamma(D_s^{*-} K^+)\right]/\Gamma_{\text{total}}$ $\qquad (\Gamma_{115}+\Gamma_{125})/\Gamma$

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<7 \times 10^{-4}}$	90	[1] ALBRECHT	93E	ARG	$e^+ e^- \to \Upsilon(4S)$

[1] ALBRECHT 93E reports $< 1.2 \times 10^{-3}$ from a measurement of $\left[\left[\Gamma(B^0 \to D_s^{*+} \pi^-) + \Gamma(B^0 \to D_s^{*-} K^+)\right]/\Gamma_{\text{total}}\right] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.027$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

$\Gamma(D_s^+ \rho^-)/\Gamma_{\text{total}}$ $\qquad \Gamma_{116}/\Gamma$

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{< 2.4}$	90	[1] AUBERT	08AJ	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<130	90	[2] ALBRECHT	93E	ARG	$e^+ e^- \to \Upsilon(4S)$
< 50	90	[3] ALEXANDER	93B	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ALBRECHT 93E reports $< 2.2 \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to D_s^+ \rho^-)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.027$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

[3] ALEXANDER 93B reports $< 6.6 \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \to D_s^+ \rho^-)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.037$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

$\Gamma(D_s^{*+} \rho^-)/\Gamma_{\text{total}}$ $\qquad \Gamma_{117}/\Gamma$

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{4.1^{+1.3}_{-1.2} \pm 0.4}$		[1] AUBERT	08AJ	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<150	90	[2] ALBRECHT	93E	ARG	$e^+ e^- \to \Upsilon(4S)$
< 60	90	[3] ALEXANDER	93B	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ALBRECHT 93E reports $< 2.5 \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to D_s^{*+} \rho^-)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.027$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

[3] ALEXANDER 93B reports $< 7.4 \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \to D_s^{*+} \rho^-)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.037$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

$\Gamma(D_s^+ a_0^-)/\Gamma_{\text{total}}$ Γ_{118}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.9	90	[1] AUBERT	06X	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D_s^{*+} a_0^-)/\Gamma_{\text{total}}$ Γ_{119}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<3.6	90	[1] AUBERT	06X	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D_s^+ a_1(1260)^-)/\Gamma_{\text{total}}$ Γ_{120}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<2.1 \times 10^{-3}$	90	[1] ALBRECHT	93E	ARG	$e^+ e^- \to \Upsilon(4S)$

[1] ALBRECHT 93E reports $< 3.5 \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to D_s^+ a_1(1260)^-)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.027$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

$\Gamma(D_s^{*+} a_1(1260)^-)/\Gamma_{\text{total}}$ Γ_{121}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<1.7 \times 10^{-3}$	90	[1] ALBRECHT	93E	ARG	$e^+ e^- \to \Upsilon(4S)$

[1] ALBRECHT 93E reports $< 2.9 \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to D_s^{*+} a_1(1260)^-)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.027$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

$\Gamma(D_s^+ a_2^-)/\Gamma_{\text{total}}$ Γ_{122}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<19	90	[1] AUBERT	06X	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D_s^{*+} a_2^-)/\Gamma_{\text{total}}$ Γ_{123}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<20	90	[1] AUBERT	06X	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D_s^- K^+)/\Gamma_{\text{total}}$ Γ_{124}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
27 ± 5 OUR FIT Error includes scale factor of 2.7.				
22 ± 5 OUR AVERAGE Error includes scale factor of 1.8.				
19.1 ± 2.4 ± 1.7		[1] DAS 10	BELL	$e^+e^- \to \Upsilon(4S)$
29 ± 4 ± 2		[1] AUBERT 08AJ	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
27 ± 5 ± 2		[2] AUBERT 07K	BABR	Repl. by AUBERT 08AJ
26 ± 10 ± 2		[3] AUBERT 03D	BABR	Repl. by AUBERT 07K
$36 {}^{+11}_{-10} \pm 3$		[4] KROKOVNY 02	BELL	Repl. by DAS 10
< 190	90	[5] ALEXANDER 93B	CLE2	$e^+e^- \to \Upsilon(4S)$
<1300	90	[6] BORTOLETTO 90	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] AUBERT 07K reports $[\Gamma(B^0 \to D_s^- K^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)] = (1.21 \pm 0.17 \pm 0.11) \times 10^{-6}$ which we divide by our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] AUBERT 03D reports $[\Gamma(B^0 \to D_s^- K^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)] = (1.16 \pm 0.36 \pm 0.24) \times 10^{-6}$ which we divide by our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] KROKOVNY 02 reports $[\Gamma(B^0 \to D_s^- K^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)] = (1.61 {}^{+0.45}_{-0.38} \pm 0.21) \times 10^{-6}$ which we divide by our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[5] ALEXANDER 93B reports $< 230 \times 10^{-6}$ from a measurement of $[\Gamma(B^0 \to D_s^- K^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.037$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

[6] BORTOLETTO 90 assume $B(D_s \to \phi\pi^+) = 2\%$.

$\Gamma(D_s^{*-} K^+)/\Gamma_{\text{total}}$ Γ_{125}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
2.19 ± 0.30 OUR AVERAGE				
2.02 ± 0.33 ± 0.22		[1] JOSHI 10	BELL	$e^+e^- \to \Upsilon(4S)$
2.4 ± 0.4 ± 0.2		[1] AUBERT 08AJ	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
2.2 ± 0.6 ± 0.2		[2] AUBERT 07K	BABR	Repl. by AUBERT 08AJ
< 2.5	90	AUBERT 03D	BABR	Repl. by AUBERT 07K
<14	90	[3] ALEXANDER 93B	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] AUBERT 07K reports $[\Gamma(B^0 \to D_s^{*-} K^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)] = (0.97 \pm 0.24 \pm 0.12) \times 10^{-6}$ which we divide by our best value $B(D_s^+ \to \phi\pi^+) = (4.5 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] ALEXANDER 93B reports $< 17 \times 10^{-5}$ from a measurement of $[\Gamma(B^0 \to D_s^{*-} K^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.037$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

$\Gamma(D_s^- K^+)/\Gamma(D^- \pi^+)$ Γ_{124}/Γ_{35}

VALUE (units 10^{-2})	*DOCUMENT ID*	*TECN*	*COMMENT*
1.09±0.19 OUR FIT	Error includes scale factor of 2.7.		
1.29±0.05±0.08	AAIJ 15AC	LHCB	pp at 7, 8 TeV

$\Gamma(D_s^- K^*(892)^+)/\Gamma_{\text{total}}$ Γ_{126}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{3.5^{+1.0}_{-0.9}\pm0.4}$		[1] AUBERT 08AJ	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<280	90	[2] ALBRECHT 93E	ARG	$e^+e^- \to \Upsilon(4S)$
< 80	90	[3] ALEXANDER 93B	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ALBRECHT 93E reports $< 4.6 \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to D_s^- K^*(892)^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.027$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

[3] ALEXANDER 93B reports $< 9.7 \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \to D_s^- K^*(892)^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.037$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

$\Gamma(D_s^{*-} K^*(892)^+)/\Gamma_{\text{total}}$ Γ_{127}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{3.2^{+1.4}_{-1.2}\pm0.4}$		[1] AUBERT 08AJ	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<350	90	[2] ALBRECHT 93E	ARG	$e^+e^- \to \Upsilon(4S)$
< 90	90	[3] ALEXANDER 93B	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ALBRECHT 93E reports $< 5.8 \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to D_s^{*-} K^*(892)^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.027$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

[3] ALEXANDER 93B reports $< 11.0 \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \to D_s^{*-} K^*(892)^+)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.037$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

$\Gamma(D_s^- \pi^+ K^0)/\Gamma_{\text{total}}$ Γ_{128}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
0.97±0.14 OUR AVERAGE				
0.94±0.12±0.10		[1] WIECHCZYN...15	BELL	$e^+e^- \to \Upsilon(4S)$
1.10±0.26±0.20		[1] AUBERT 08G	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<40	90	[2] ALBRECHT 93E	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ALBRECHT 93E reports $< 7.3 \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to D_s^- \pi^+ K^0)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.027$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

$\Gamma(D_s^{*-}\pi^+K^0)/\Gamma_{\text{total}}$ Γ_{129}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
< 1.10	90	[1] AUBERT 08G	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<25	90	[2] ALBRECHT 93E	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ALBRECHT 93E reports $< 4.2\times10^{-3}$ from a measurement of $[\Gamma(B^0 \to D_s^{*-}\pi^+K^0)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.027$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

$\Gamma(D_s^-K^+\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{130}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*	*TECN*	*COMMENT*
1.71±0.31±0.34	[1] AAIJ 12AX	LHCB	pp at 7 TeV

[1] AAIJ 12AX reports $[\Gamma(B^0 \to D_s^-K^+\pi^+\pi^-)/\Gamma_{\text{total}}]$ / $[B(B_s^0 \to D_s^-K^+\pi^+\pi^-)] = 0.54 \pm 0.07 \pm 0.07$ which we multiply by our best value $B(B_s^0 \to D_s^-K^+\pi^+\pi^-) = (3.2 \pm 0.6) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(D_s^-\pi^+K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{131}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<3.0\times10^{-3}$	90	[1] ALBRECHT 93E	ARG	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 93E reports $< 5.0 \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to D_s^-\pi^+K^*(892)^0)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.027$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

$\Gamma(D_s^{*-}\pi^+K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{132}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<1.6\times10^{-3}$	90	[1] ALBRECHT 93E	ARG	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 93E reports $< 2.7 \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to D_s^{*-}\pi^+K^*(892)^0)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = 0.027$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = 4.5 \times 10^{-2}$.

$\Gamma(\overline{D}^0K^0)/\Gamma_{\text{total}}$ Γ_{133}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*	*TECN*	*COMMENT*
5.2±0.7 OUR AVERAGE			
5.3±0.7±0.3	[1] AUBERT,B 06L	BABR	$e^+e^- \to \Upsilon(4S)$
$5.0^{+1.3}_{-1.2}\pm0.6$	[1] KROKOVNY 03	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{D}^0K^+\pi^-)/\Gamma_{\text{total}}$ Γ_{134}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*	*TECN*	*COMMENT*
88±15±9	[1] AUBERT 06A	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{D}^0 K^+ \pi^-)/\Gamma(\overline{D}^0 \pi^+ \pi^-)$ Γ_{134}/Γ_{44}

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.106±0.007±0.008	AAIJ	13AQ	LHCB	pp at 7 TeV

$\Gamma(\overline{D}^0 K^*(892)^0)/\Gamma_{\rm total}$ Γ_{135}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
4.5±0.6 OUR AVERAGE				
5.4±0.3±1.1	[1,2] AAIJ	15X	LHCB	pp at 7, 8 TeV
4.0±0.7±0.3	[3] AUBERT,B	06L	BABR	$e^+e^- \to \Upsilon(4S)$
$4.8^{+1.1}_{-1.0}\pm0.5$	[3] KROKOVNY	03	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5.7±0.9±0.6	[3] AUBERT	06A	BABR	Repl. by AUBERT,B 06L

[1] AAIJ 15X reports $(5.13 \pm 0.20 \pm 0.15 \pm 0.24 \pm 0.60) \times 10^{-5}$ from a measurement of $[\Gamma(B^0 \to \overline{D}^0 K^*(892)^0)/\Gamma_{\rm total}] \times [B(B^0 \to \overline{D}^0 K^+\pi^-)]$ assuming $B(B^0 \to \overline{D}^0 K^+\pi^-) = (9.2 \pm 0.6 \pm 0.7 \pm 0.6) \times 10^{-5}$, which we rescale to our best value $B(B^0 \to \overline{D}^0 K^+\pi^-) = (8.8 \pm 1.7) \times 10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Measured via amplitude analysis of $B^0 \to \overline{D}^0 K^+\pi^-$, which excludes contribution from decay via $D^*(2010)^-$ resonance.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{D}^0 K^*(1410)^0)/\Gamma_{\rm total}$ Γ_{136}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<6.7 \times 10^{-5}$	90	[1] AAIJ	15X	LHCB	pp at 7, 8 TeV

[1] Measured via amplitude analysis of $B^0 \to \overline{D}^0 K^+\pi^-$, which excludes contribution from decay via $D^*(2010)^-$ resonance.

$\Gamma(\overline{D}^0 K^*_0(1430)^0)/\Gamma_{\rm total}$ Γ_{137}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
0.7±0.7±0.1	[1,2] AAIJ	15X	LHCB	pp at 7, 8 TeV

[1] AAIJ 15X reports $(0.71 \pm 0.27 \pm 0.33 \pm 0.47 \pm 0.08) \times 10^{-5}$ from a measurement of $[\Gamma(B^0 \to \overline{D}^0 K^*_0(1430)^0)/\Gamma_{\rm total}] \times [B(B^0 \to \overline{D}^0 K^+\pi^-)]$ assuming $B(B^0 \to \overline{D}^0 K^+\pi^-) = (9.2 \pm 0.6 \pm 0.7 \pm 0.6) \times 10^{-5}$, which we rescale to our best value $B(B^0 \to \overline{D}^0 K^+\pi^-) = (8.8 \pm 1.7) \times 10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Measured via amplitude analysis of $B^0 \to \overline{D}^0 K^+\pi^-$, which excludes contribution from decay via $D^*(2010)^-$ resonance.

$\Gamma(\overline{D}^0 K^*_2(1430)^0)/\Gamma_{\rm total}$ Γ_{138}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.1±0.8±0.4	[1,2] AAIJ	15X	LHCB	pp at 7, 8 TeV

[1] AAIJ 15X reports $(2.04 \pm 0.45 \pm 0.30 \pm 0.54 \pm 0.25) \times 10^{-5}$ from a measurement of $[\Gamma(B^0 \to \overline{D}^0 K^*_2(1430)^0)/\Gamma_{\rm total}] \times [B(B^0 \to \overline{D}^0 K^+\pi^-)]$ assuming $B(B^0 \to \overline{D}^0 K^+\pi^-) = (9.2 \pm 0.6 \pm 0.7 \pm 0.6) \times 10^{-5}$, which we rescale to our best value $B(B^0 \to \overline{D}^0 K^+\pi^-) = (8.8 \pm 1.7) \times 10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Measured via amplitude analysis of $B^0 \to \overline{D}^0 K^+\pi^-$, which excludes contribution from decay via $D^*(2010)^-$ resonance.

$\Gamma\big(D_0^*(2300)^- K^+,\ D_0^{*-} \to \overline{D}{}^0 \pi^-\big)/\Gamma_{\text{total}}$ Γ_{139}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{1.9 \pm 0.8 \pm 0.4}$	[1,2] AAIJ 15X	LHCB	pp at 7, 8 TeV

[1] AAIJ 15X reports $(1.77 \pm 0.26 \pm 0.19 \pm 0.67 \pm 0.20) \times 10^{-5}$ from a measurement of $[\Gamma\big(B^0 \to D_0^*(2300)^- K^+,\ D_0^{*-} \to \overline{D}{}^0 \pi^-\big)/\Gamma_{\text{total}}] \times [\text{B}(B^0 \to \overline{D}{}^0 K^+ \pi^-)]$ assuming $\text{B}(B^0 \to \overline{D}{}^0 K^+ \pi^-) = (9.2 \pm 0.6 \pm 0.7 \pm 0.6) \times 10^{-5}$, which we rescale to our best value $\text{B}(B^0 \to \overline{D}{}^0 K^+ \pi^-) = (8.8 \pm 1.7) \times 10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Measured via amplitude analysis of $B^0 \to \overline{D}{}^0 K^+ \pi^-$, which excludes contribution from decay via $D^*(2010)^-$ resonance.

$\Gamma\big(D_2^*(2460)^- K^+,\ D_2^{*-} \to \overline{D}{}^0 \pi^-\big)/\Gamma_{\text{total}}$ Γ_{140}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{20.3 \pm 3.5}$ **OUR AVERAGE**			
$22 \pm 2 \pm 4$	[1,2] AAIJ 15X	LHCB	pp at 7, 8 TeV
$18.3 \pm 4.0 \pm 3.1$	[3] AUBERT 06A	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] AAIJ 15X reports $(2.12 \pm 0.10 \pm 0.11 \pm 0.11 \pm 0.25) \times 10^{-5}$ from a measurement of $[\Gamma\big(B^0 \to D_2^*(2460)^- K^+,\ D_2^{*-} \to \overline{D}{}^0 \pi^-\big)/\Gamma_{\text{total}}] \times [\text{B}(B^0 \to \overline{D}{}^0 K^+ \pi^-)]$ assuming $\text{B}(B^0 \to \overline{D}{}^0 K^+ \pi^-) = (9.2 \pm 0.6 \pm 0.7 \pm 0.6) \times 10^{-5}$, which we rescale to our best value $\text{B}(B^0 \to \overline{D}{}^0 K^+ \pi^-) = (8.8 \pm 1.7) \times 10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Measured via amplitude analysis of $B^0 \to \overline{D}{}^0 K^+ \pi^-$, which excludes contribution from decay via $D^*(2010)^-$ resonance.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(D_3^*(2760)^- K^+,\ D_3^{*-} \to \overline{D}{}^0 \pi^-\big)/\Gamma_{\text{total}}$ Γ_{141}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{<0.10 \times 10^{-5}}$	90	[1] AAIJ 15X	LHCB	pp at 7, 8 TeV

[1] Measured via amplitude analysis of $B^0 \to \overline{D}{}^0 K^+ \pi^-$, which excludes contribution from decay via $D^*(2010)^-$ resonance.

$\Gamma\big(\overline{D}{}^0 K^+ \pi^- \text{ nonresonant}\big)/\Gamma_{\text{total}}$ Γ_{142}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{<37}$	90	[1] AUBERT 06A	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big([K^+ K^-]_D K^*(892)^0\big)/\Gamma\big(\overline{D}{}^0 K^*(892)^0\big)$ $\Gamma_{143}/\Gamma_{135}$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{0.92 \pm 0.10 \pm 0.02}$	AAIJ 19N	LHCB	pp at 7, 8, 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$1.05^{+0.17}_{-0.15} \pm 0.04$	AAIJ 14BN	LHCB	Repl. by AAIJ 16S
$1.36^{+0.37}_{-0.32} \pm 0.07$	AAIJ 13L	LHCB	Repl. by AAIJ 14BN

$\Gamma([\pi^+\pi^-]_D K^*(892)^0)/\Gamma(\overline{D}^0 K^*(892)^0)$ $\Gamma_{144}/\Gamma_{135}$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
1.32±0.19±0.03	AAIJ 19N	LHCB	pp at 7, 8, 13 TeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$1.21^{+0.28}_{-0.25}\pm0.05$	AAIJ 14BN	LHCB	Repl. by AAIJ 16S

$\Gamma([\pi^+ K^-]_D K^*(892)^0)/\Gamma([K^+\pi^-]_D K^*(892)^0)$ $\Gamma_{145}/\Gamma_{146}$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.080±0.015±0.002	AAIJ 19N	LHCB	pp at 7, 8, 13 TeV

$\Gamma([\pi^+\pi^-\pi^+\pi^-]_D K^{*0})/\Gamma(\overline{D}^0 K^*(892)^0)$ $\Gamma_{147}/\Gamma_{135}$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
1.01±0.16±0.04	AAIJ 19N	LHCB	pp at 7, 8, 13 TeV

$\Gamma([\pi^+ K^-\pi^+\pi^-]_D K^{*0})/\Gamma([K^+\pi^-\pi^+\pi^-]_D K^{*0})$ $\Gamma_{148}/\Gamma_{149}$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.073±0.018±0.002	AAIJ 19N	LHCB	pp at 7, 8, 13 TeV

$\Gamma(\overline{D}^0\pi^0)/\Gamma_{\text{total}}$ Γ_{150}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
2.67±0.09 OUR AVERAGE				
2.70±0.06±0.10		BLOOMFIELD 22	BELL	$e^+e^- \to \Upsilon(4S)$
2.69±0.09±0.13		[1] LEES 11M	BABR	$e^+e^- \to \Upsilon(4S)$
2.25±0.14±0.35		[1] BLYTH 06	BELL	$e^+e^- \to \Upsilon(4S)$
$2.74^{+0.36}_{-0.32}\pm0.55$		[1] COAN 02	CLE2	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
2.9 ±0.2 ±0.3		[1] AUBERT 04B	BABR	Repl. by LEES 11M
3.1 ±0.4 ±0.5		[1] ABE 02J	BELL	Repl. by BLYTH 06
<1.2	90	[2] NEMATI 98	CLE2	Repl. by COAN 02
<4.8	90	[3] ALAM 94	CLE2	Repl. by NEMATI 98

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] NEMATI 98 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the PDG 96 values for D^0, D^{*0}, η, η', and ω branching fractions.

[3] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II absolute B($D^0 \to K^-\pi^+$) and the PDG 1992 B($D^0 \to K^-\pi^+\pi^0$)/B($D^0 \to K^-\pi^+$) and B($D^0 \to K^- 2\pi^+\pi^-$)/B($D^0 \to K^-\pi^+$).

$\Gamma(\overline{D}^0\rho^0)/\Gamma_{\text{total}}$ Γ_{151}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
3.21±0.21 OUR AVERAGE				
3.21±0.10±0.21		[1] AAIJ 15Y	LHCB	pp at 7, 8 TeV
3.19±0.20±0.45		[2,3] KUZMIN 07	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
2.9 ±1.0 ±0.4		[2] SATPATHY 03	BELL	Repl. by KUZMIN 07
< 3.9	90	[4] NEMATI 98	CLE2	$e^+e^- \to \Upsilon(4S)$

$<$ 5.5	90	[5] ALAM	94	CLE2	Repl. by NEMATI 98
$<$ 6.0	90	[6] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
$<$27.0	90	[7] ALBRECHT	88K	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Measured using isobar formalism in the decay chain $B^0 \to \overline{D}{}^0\rho(770)$, $\rho \to \pi^+\pi^-$ assuming B($\rho(770) \to \pi^+\pi^-$) = 1. The second uncertainty combines in quadrature all systematic uncertainties quoted in the paper.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] Our second uncertainty combines systematics and model errors quoted in the paper.

[4] NEMATI 98 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the PDG 96 values for D^0, D^{*0}, η, η', and ω branching fractions.

[5] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II absolute B($D^0 \to K^-\pi^+$) and the PDG 1992 B($D^0 \to K^-\pi^+\pi^0$)/B($D^0 \to K^-\pi^+$) and B($D^0 \to K^-2\pi^+\pi^-$)/B($D^0 \to K^-\pi^+$).

[6] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

[7] ALBRECHT 88K reports $<$ 0.003 assuming $B^0\overline{B}{}^0$:B^+B^- production ratio is 45:55. We rescale to 50%.

$\Gamma(\overline{D}{}^0 f_2)/\Gamma_{\text{total}}$ Γ_{152}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.56±0.21 OUR AVERAGE				
1.68±0.11±0.21	[1] AAIJ	15Y	LHCB	pp at 7, 8 TeV
1.20±0.18±0.38	[2,3] KUZMIN	07	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Result obtained using the isobar formalism. The second uncertainty combines in quadrature all systematic uncertainties quoted in the paper. Measured in the decay chain $B^0 \to \overline{D}{}^0 f_2(1270)$, $f_2 \to \pi^+\pi^-$.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] Our second uncertainty combines systematics and model errors quoted in the paper.

$\Gamma(\overline{D}{}^0\eta)/\Gamma_{\text{total}}$ Γ_{153}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.36±0.32 OUR AVERAGE	Error includes scale factor of 2.5.				
2.53±0.09±0.11		[1] LEES	11M	BABR	$e^+e^- \to \Upsilon(4S)$
1.77±0.16±0.21		[1] BLYTH	06	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.5 ±0.2 ±0.3		[1] AUBERT	04B	BABR	Repl. by LEES 11M
$1.4\ ^{+0.5}_{-0.4}\ \pm0.3$		[1] ABE	02J	BELL	Repl. by BLYTH 06
$<$1.3	90	[2] NEMATI	98	CLE2	$e^+e^- \to \Upsilon(4S)$
$<$6.8	90	[3] ALAM	94	CLE2	Repl. by NEMATI 98

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] NEMATI 98 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the PDG 96 values for D^0, D^{*0}, η, η', and ω branching fractions.

[3] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II absolute B($D^0 \to K^-\pi^+$) and the PDG 1992 B($D^0 \to K^-\pi^+\pi^0$)/B($D^0 \to K^-\pi^+$) and B($D^0 \to K^-2\pi^+\pi^-$)/B($D^0 \to K^-\pi^+$).

$\Gamma(\overline{D}^0\eta')/\Gamma_{\text{total}}$ — Γ_{154}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
1.38±0.16 OUR AVERAGE	Error includes scale factor of 1.3.			
$1.48\pm0.13\pm0.07$		[1] LEES 11M	BABR	$e^+e^-\to\Upsilon(4S)$
$1.14\pm0.20^{+0.10}_{-0.13}$		[1] SCHUMANN 05	BELL	$e^+e^-\to\Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.7\pm0.4\pm0.2$		[1] AUBERT 04B	BABR	Repl. by LEES 11M
<9.4	90	[2] NEMATI 98	CLE2	$e^+e^-\to\Upsilon(4S)$
<8.6	90	[3] ALAM 94	CLE2	Repl. by NEMATI 98

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] NEMATI 98 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the PDG 96 values for D^0, D^{*0}, η, η', and ω branching fractions.

[3] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II absolute B($D^0\to K^-\pi^+$) and the PDG 1992 B($D^0\to K^-\pi^+\pi^0$)/B($D^0\to K^-\pi^+$) and B($D^0\to K^-2\pi^+\pi^-$)/B($D^0\to K^-\pi^+$).

$\Gamma(\overline{D}^0\eta')/\Gamma(\overline{D}^0\eta)$ — $\Gamma_{154}/\Gamma_{153}$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.54±0.07±0.01	LEES 11M	BABR	$e^+e^-\to\Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.7\pm0.2\pm0.1$	AUBERT 04B	BABR	Repl. by LEES 11M

$\Gamma(\overline{D}^0\omega)/\Gamma_{\text{total}}$ — Γ_{155}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
2.54±0.16 OUR AVERAGE				
$2.75\pm0.72\pm0.35$		[1] AAIJ 15Y	LHCB	pp at 7, 8 TeV
$2.57\pm0.11\pm0.14$		[2] LEES 11M	BABR	$e^+e^-\to\Upsilon(4S)$
$2.37\pm0.23\pm0.28$		[2] BLYTH 06	BELL	$e^+e^-\to\Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$3.0\pm0.3\pm0.4$		[2] AUBERT 04B	BABR	Repl. by LEES 11M
$1.8\pm0.5^{+0.4}_{-0.3}$		[2] ABE 02J	BELL	Repl. by BLYTH 06
<5.1	90	[3] NEMATI 98	CLE2	$e^+e^-\to\Upsilon(4S)$
<6.3	90	[4] ALAM 94	CLE2	Repl. by NEMATI 98

[1] Result obtained using the isobar model. The second uncertainty combines in quadrature all systematic uncertainties quoted in the paper.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] NEMATI 98 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the PDG 96 values for D^0, D^{*0}, η, η', and ω branching fractions.

[4] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II absolute B($D^0\to K^-\pi^+$) and the PDG 1992 B($D^0\to K^-\pi^+\pi^0$)/B($D^0\to K^-\pi^+$) and B($D^0\to K^-2\pi^+\pi^-$)/B($D^0\to K^-\pi^+$).

$\Gamma(D^0\phi)/\Gamma_{\text{total}}$ — Γ_{156}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{<2.3\times10^{-6}}$	95	AAIJ 18AY	LHCB	pp at 7 and 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$<11.6\times10^{-6}$	90	[1] AUBERT 07AO	BABR	$e^+e^-\to\Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^0 K^+ \pi^-)/\Gamma_{\text{total}}$ Γ_{157}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<19	90	[1] AUBERT	06A	BABR	Repl. by AUBERT 09AE

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^0 K^+ \pi^-)/\Gamma(\overline{D}{}^0 K^+ \pi^-)$ $\Gamma_{157}/\Gamma_{134}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.060±0.034 OUR AVERAGE				
$0.045^{+0.056}_{-0.050}{}^{+0.028}_{-0.018}$	[1,2] NEGISHI	12	BELL	$e^+e^- \to \Upsilon(4S)$
0.068 ± 0.042	[3] AUBERT	09AE	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$.

[2] Uses $D^0 \to K^-\pi^+$mode. Restricts $K^+\pi^-$ mass within ± 50 MeV of the nominal K^{*0} mass. Corresponds to the upper limit, < 0.16 at 95% CL.

[3] Reports a signal at the level of 2.5 standard deviations after combining results from $D^0 \to K^+\pi^-$, $K^+\pi^-\pi^0$, and $K^+\pi^-\pi^+\pi^-$.

$\Gamma(D^0 K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{158}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<1.1	90	[1] AUBERT,B	06L	BABR	$e^+e^- \to \Upsilon(4S)$
<1.8	90	[1] KROKOVNY	03	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^0 K^*(892)^0)/\Gamma(\overline{D}{}^0 K^*(892)^0)$ $\Gamma_{158}/\Gamma_{135}$

"OUR EVALUATION" is derived from $r_{B^0}(B^0 \to D K^{*0})$ data block listed in "*CP* vilation parameters" section.

VALUE (units 10^{-2})	*DOCUMENT ID*
$6.6^{+1.1}_{-1.2}$ OUR EVALUATION	

$\Gamma(\overline{D}{}^{*0}\gamma)/\Gamma_{\text{total}}$ Γ_{159}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<2.5 \times 10^{-5}$	90	[1] AUBERT,B	05Q	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<5.0 \times 10^{-5}$	90	[1] ARTUSO	00	CLE2	$e^+e^- \to \Upsilon(4S)$

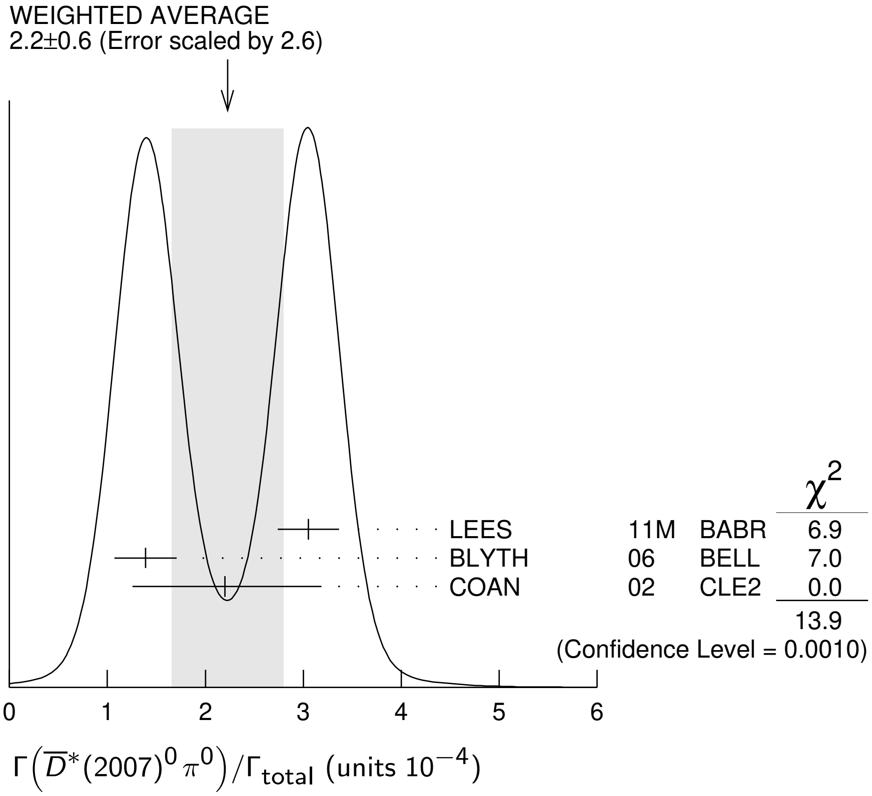
[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{D}{}^*(2007)^0\pi^0)/\Gamma_{\text{total}}$ Γ_{160}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.2 ±0.6 OUR AVERAGE		Error includes scale factor of 2.6. See the ideogram below.			
$3.05\pm0.14\pm0.28$		[1] LEES	11M	BABR	$e^+e^- \to \Upsilon(4S)$
$1.39\pm0.18\pm0.26$		[1] BLYTH	06	BELL	$e^+e^- \to \Upsilon(4S)$
$2.20^{+0.59}_{-0.52}\pm0.79$		[1] COAN	02	CLE2	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$2.9 \pm 0.4 \pm 0.5$		[1] AUBERT	04B	BABR	Repl. by LEES 11M
$2.7 {}^{+0.8}_{-0.7} {}^{+0.5}_{-0.6}$		[1] ABE	02J	BELL	Repl. by BLYTH 06
<4.4	90	[2] NEMATI	98	CLE2	Repl. by COAN 02
<9.7	90	[3] ALAM	94	CLE2	Repl. by NEMATI 98



[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] NEMATI 98 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the PDG 96 values for D^0, D^{*0}, η, η', and ω branching fractions.

[3] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II $B(D^*(2007)^0 \to D^0\pi^0)$ and absolute $B(D^0 \to K^-\pi^+)$ and the PDG 1992 $B(D^0 \to K^-\pi^+\pi^0)/B(D^0 \to K^-\pi^+)$ and $B(D^0 \to K^-2\pi^+\pi^-)/B(D^0 \to K^-\pi^+)$.

$\Gamma\left(\overline{D}^0\pi^0\right)/\Gamma\left(\overline{D}^*(2007)^0\pi^0\right)$ $\Gamma_{150}/\Gamma_{160}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.90 ± 0.08 OUR AVERAGE				
$0.88 \pm 0.05 \pm 0.06$	LEES	11M	BABR	$e^+e^- \to \Upsilon(4S)$
$1.62 \pm 0.23 \pm 0.35$	BLYTH	06	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$1.0 \pm 0.1 \pm 0.2$	AUBERT	04B	BABR	Repl. by LEES 11M

$\Gamma(\overline{D}^*(2007)^0 \rho^0)/\Gamma_{\text{total}}$ Γ_{161}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<5.1 × 10^{-4}	90	[1] SATPATHY	03	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.00056	90	[2] NEMATI	98	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
<0.00117	90	[3] ALAM	94	CLE2	Repl. by NEMATI 98

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] NEMATI 98 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the PDG 96 values for D^0, D^{*0}, η, η', and ω branching fractions.

[3] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II B($D^*(2007)^0 \rightarrow D^0 \pi^0$) and absolute B($D^0 \rightarrow K^- \pi^+$) and the PDG 1992 B($D^0 \rightarrow K^- \pi^+ \pi^0$)/B($D^0 \rightarrow K^- \pi^+$) and B($D^0 \rightarrow K^- 2\pi^+ \pi^-$)/B($D^0 \rightarrow K^- \pi^+$).

$\Gamma(\overline{D}^*(2007)^0 \eta)/\Gamma_{\text{total}}$ Γ_{162}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
2.3 ±0.6 OUR AVERAGE		Error includes scale factor of 2.8.			
2.69±0.14±0.23		[1] LEES	11M	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
1.40±0.28±0.26		[1] BLYTH	06	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
2.6 ±0.4 ±0.4		[1] AUBERT	04B	BABR	Repl. by LEES 11M
<4.6	90	[1] ABE	02J	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
<2.6	90	[2] NEMATI	98	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
<6.9	90	[3] ALAM	94	CLE2	Repl. by NEMATI 98

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] NEMATI 98 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the PDG 96 values for D^0, D^{*0}, η, η', and ω branching fractions.

[3] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II B($D^*(2007)^0 \rightarrow D^0 \pi^0$) and absolute B($D^0 \rightarrow K^- \pi^+$) and the PDG 1992 B($D^0 \rightarrow K^- \pi^+ \pi^0$)/B($D^0 \rightarrow K^- \pi^+$) and B($D^0 \rightarrow K^- 2\pi^+ \pi^-$)/B($D^0 \rightarrow K^- \pi^+$).

$\Gamma(\overline{D}^0 \eta)/\Gamma(\overline{D}^*(2007)^0 \eta)$ $\Gamma_{153}/\Gamma_{162}$

VALUE	DOCUMENT ID		TECN	COMMENT
0.99±0.10 OUR AVERAGE				
0.97±0.07±0.07	LEES	11M	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
1.27±0.29±0.25	BLYTH	06	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	DOCUMENT ID		TECN	COMMENT
0.9 ±0.2 ±0.1	AUBERT	04B	BABR	Repl. by LEES 11M

$\Gamma(\overline{D}^*(2007)^0 \eta')/\Gamma(\overline{D}^*(2007)^0 \eta)$ $\Gamma_{163}/\Gamma_{162}$

VALUE	DOCUMENT ID		TECN	COMMENT
0.61±0.14±0.02	LEES	11M	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	DOCUMENT ID		TECN	COMMENT
0.5 ±0.3 ±0.1	AUBERT	04B	BABR	Repl. by LEES 11M

$\Gamma(\overline{D}^*(2007)^0\eta')/\Gamma_{total}$ Γ_{163}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.40±0.22 OUR AVERAGE					
1.48±0.22±0.13		[1] LEES	11M	BABR	$e^+e^- \to \Upsilon(4S)$
1.21±0.34±0.22		[1] SCHUMANN	05	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.3 ±0.7 ±0.2		[1,2] AUBERT	04B	BABR	Repl. by LEES 11M
<14	90	BRANDENB...	98	CLE2	$e^+e^- \to \Upsilon(4S)$
<19	90	[3] NEMATI	98	CLE2	$e^+e^- \to \Upsilon(4S)$
<27	90	[4] ALAM	94	CLE2	Repl. by NEMATI 98

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Reports an upper limit $< 2.6 \times 10^{-4}$ at 90% CL.

[3] NEMATI 98 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the PDG 96 values for D^0, D^{*0}, η, η', and ω branching fractions.

[4] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II B($D^*(2007)^0 \to D^0\pi^0$) and absolute B($D^0 \to K^-\pi^+$) and the PDG 1992 B($D^0 \to K^-\pi^+\pi^0$)/B($D^0 \to K^-\pi^+$) and B($D^0 \to K^-2\pi^+\pi^-$)/B($D^0 \to K^-\pi^+$).

$\Gamma(\overline{D}^0\eta')/\Gamma(\overline{D}^*(2007)^0\eta')$ $\Gamma_{154}/\Gamma_{163}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.96±0.18±0.06	LEES	11M	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.3 ±0.8 ±0.2	AUBERT	04B	BABR	Repl. by LEES 11M

$\Gamma(\overline{D}^*(2007)^0\pi^+\pi^-)/\Gamma_{total}$ Γ_{164}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$(6.2\pm1.2\pm1.8) \times 10^{-4}$	[1,2] SATPATHY	03	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] No assumption about the intermediate mechanism is made in the analysis.

$\Gamma(\overline{D}^*(2007)^0K^+\pi^-)/\Gamma(\overline{D}^*(2007)^0\pi^+\pi^-)$ $\Gamma_{165}/\Gamma_{164}$

VALUE (units 10^{-2})	*DOCUMENT ID*		*TECN*	*COMMENT*
8.36±0.43±0.61	AAIJ	22N	LHCB	pp at 13 TeV

$\Gamma(\overline{D}^*(2007)^0K^0)/\Gamma_{total}$ Γ_{166}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
3.6±1.2±0.3		[1] AUBERT,B	06L	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<6.6	90	[1] KROKOVNY	03	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{D}^*(2007)^0K^*(892)^0)/\Gamma_{total}$ Γ_{167}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<6.9 \times 10^{-5}$	90	[1] KROKOVNY	03	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^*(2007)^0 K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{168}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<4.0 \times 10^{-5}$	90	[1] KROKOVNY	03	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^*(2007)^0 \pi^+\pi^+\pi^-\pi^-)/\Gamma_{\text{total}}$ Γ_{169}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.7 ±0.5 OUR AVERAGE				
2.60±0.47±0.37	[1] MAJUMDER	04	BELL	$e^+e^- \to \Upsilon(4S)$
3.0 ±0.7 ±0.6	[1] EDWARDS	02	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^*(2007)^0 \pi^+\pi^+\pi^-\pi^-)/\Gamma(D^*(2010)^- \pi^+\pi^+\pi^-\pi^0)$ Γ_{169}/Γ_{64}

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.17±0.04±0.02	[1] EDWARDS	02	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^*(2010)^+ D^*(2010)^-)/\Gamma_{\text{total}}$ Γ_{170}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
8.0 ±0.6 OUR AVERAGE					
7.82±0.38±0.63		[1] KRONENBIT...	12	BELL	$e^+e^- \to \Upsilon(4S)$
8.1 ±0.6 ±1.0		[1] AUBERT,B	06A	BABR	$e^+e^- \to \Upsilon(4S)$
$9.9\ ^{+4.2}_{-3.3}$ ±1.2		[1] LIPELES	00	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
8.1 ±0.8 ±1.1		[1] MIYAKE	05	BELL	Repl. by KRONENBITTER 12
8.3 ±1.6 ±1.2		[1,2] AUBERT	02M	BABR	Repl. by AUBERT,B 06B
$6.2\ ^{+4.0}_{-2.9}$ ±1.0		[3] ARTUSO	99	CLE2	Repl. by LIPELES 00
<61	90	[4] BARATE	98Q	ALEP	$e^+e^- \to Z$
<22	90	[5] ASNER	97	CLE2	Repl. by ARTUSO 99

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] AUBERT 02M also assumes the measured *CP*-odd fraction of the final states is 0.22 ± 0.18 ± 0.03.

[3] ARTUSO 99 uses $B(\Upsilon(4S) \to B^0\overline{B}^0)=(48 \pm 4)\%$.

[4] BARATE 98Q (ALEPH) observes 2 events with an expected background of 0.10 ± 0.03 which corresponds to a branching ratio of $(2.3^{+1.9}_{-1.2} \pm 0.4) \times 10^{-3}$.

[5] ASNER 97 at CLEO observes 1 event with an expected background of 0.022 ± 0.011. This corresponds to a branching ratio of $(5.3^{+7.1}_{-3.7} \pm 1.0) \times 10^{-4}$.

$\Gamma(\overline{D}^*(2007)^0 \omega)/\Gamma_{\text{total}}$ Γ_{171}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
3.6 ±1.1 OUR AVERAGE		Error includes scale factor of 3.1.			
4.55±0.24±0.39		[1] LEES	11M	BABR	$e^+e^- \to \Upsilon(4S)$
2.29±0.39±0.40		[1] BLYTH	06	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$4.2 \pm 0.7 \pm 0.9$	90	[1] AUBERT	04B	BABR	Repl. by LEES 11M
< 7.9	90	[1] ABE	02J	BELL	$e^+e^- \to \Upsilon(4S)$
< 7.4	90	[2] NEMATI	98	CLE2	$e^+e^- \to \Upsilon(4S)$
<21	90	[3] ALAM	94	CLE2	Repl. by NEMATI 98

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] NEMATI 98 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the PDG 96 values for D^0, D^{*0}, η, η', and ω branching fractions.

[3] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II B($D^*(2007)^0 \to D^0\pi^0$) and absolute B($D^0 \to K^-\pi^+$) and the PDG 1992 B($D^0 \to K^-\pi^+\pi^0$)/B($D^0 \to K^-\pi^+$) and B($D^0 \to K^-2\pi^+\pi^-$)/B($D^0 \to K^-\pi^+$).

$\Gamma(\overline{D}^0\omega)/\Gamma(\overline{D}^*(2007)^0\omega)$ $\Gamma_{155}/\Gamma_{171}$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.58 ± 0.06 OUR AVERAGE			
$0.56 \pm 0.04 \pm 0.04$	LEES 11M	BABR	$e^+e^- \to \Upsilon(4S)$
$1.04 \pm 0.20 \pm 0.17$	BLYTH 06	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.7 \pm 0.1 \pm 0.1$	AUBERT 04B	BABR	Repl. by LEES 11M

$\Gamma(D^*(2010)^+D^-)/\Gamma_{\text{total}}$ Γ_{172}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
6.1 ± 1.5 OUR AVERAGE		Error includes scale factor of 1.6.		
$5.7 \pm 0.7 \pm 0.7$		[1] AUBERT,B 06A	BABR	$e^+e^- \to \Upsilon(4S)$
$11.7 \pm 2.6^{+2.2}_{-2.5}$		[1,2] ABE 02Q	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$8.8 \pm 1.0 \pm 1.3$		[1] AUBERT 03J	BABR	Repl. by AUBERT,B 06B
$14.8 \pm 3.8^{+2.8}_{-3.1}$		[1,3] ABE 02Q	BELL	$e^+e^- \to \Upsilon(4S)$
< 6.3	90	[1] LIPELES 00	CLE2	$e^+e^- \to \Upsilon(4S)$
<56	90	BARATE 98Q	ALEP	$e^+e^- \to Z$
<18	90	ASNER 97	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] The measurement is performed using fully reconstructed D^* and D^+ decays.

[3] The measurement is performed using a partial reconstruction technique for the D^* and fully reconstructed D^+ decays as a cross check.

$\Gamma(D^*(2007)^0\overline{D}^*(2007)^0)/\Gamma_{\text{total}}$ Γ_{173}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
< 0.9	**90**	[1] AUBERT,B 06A	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<270	90	BARATE 98Q	ALEP	$e^+e^- \to Z$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^- D^0 K^+)/\Gamma_{\text{total}}$ Γ_{174}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*	*TECN*	*COMMENT*
1.07±0.07±0.09	[1] DEL-AMO-SA..11B	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
1.7 ±0.3 ±0.3	[1] AUBERT 03X	BABR	Repl. by DEL-AMO-SANCHEZ 11B

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^- D^*(2007)^0 K^+)/\Gamma_{\text{total}}$ Γ_{175}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*	*TECN*	*COMMENT*
3.46±0.18±0.37	[1] DEL-AMO-SA..11B	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
4.6 ±0.7 ±0.7	[1] AUBERT 03X	BABR	Repl. by DEL-AMO-SANCHEZ 11B

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^*(2010)^- D^0 K^+)/\Gamma_{\text{total}}$ Γ_{176}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*	*TECN*	*COMMENT*
2.47±0.10±0.18	[1] DEL-AMO-SA..11B	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$3.1\ ^{+0.4}_{-0.3}\ \pm 0.4$	[1] AUBERT 03X	BABR	Repl. by DEL-AMO-SANCHEZ 11B

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^*(2010)^- D^0 K^+)/\Gamma(D^- D^0 K^+)$ $\Gamma_{176}/\Gamma_{174}$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
1.754±0.028±0.038	[1] AAIJ 20AN	LHCB	pp at 7, 8, 13 TeV

[1] Uses $D^+ \to K^- \pi^+ \pi^+$, $D^0 \to K^- \pi^+$ and $D^0 \to K^- \pi^+ \pi^+ \pi^-$ decays.

$\Gamma(D^*(2010)^- D^*(2007)^0 K^+)/\Gamma_{\text{total}}$ Γ_{177}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*	*TECN*	*COMMENT*
10.6±0.33±0.86	[1] DEL-AMO-SA..11B	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
11.8±1.0 ±1.7	[1] AUBERT 03X	BABR	Repl. by DEL-AMO-SANCHEZ 11B

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^- D^+ K^0)/\Gamma_{\text{total}}$ Γ_{178}/Γ

VALUE (units 10^{-3})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
0.75±0.12±0.12		[1] DEL-AMO-SA..11B	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<1.7	90	[1] AUBERT 03X	BABR	Repl. by DEL-AMO-SANCHEZ 11B

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\left[\Gamma(D^*(2010)^- D^+ K^0) + \Gamma(D^- D^*(2010)^+ K^0)\right]/\Gamma_{\text{total}}$ Γ_{179}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*	*TECN*	*COMMENT*
6.41±0.36±0.39	[1] DEL-AMO-SA..11B	BABR	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

6.5 ±1.2 ±1.0	[1] AUBERT 03X	BABR	Repl. by DEL-AMO-SANCHEZ 11B

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^*(2010)^- D^*(2010)^+ K^0)/\Gamma_{\text{total}}$ Γ_{180}/Γ

VALUE (units 10^{-3})	DOCUMENT ID	TECN	COMMENT
8.1 ±0.7 OUR AVERAGE			
8.26±0.43±0.67	[1] DEL-AMO-SA..11B	BABR	$e^+ e^- \to \Upsilon(4S)$
6.8 ±0.8 ±1.4	[1,2] DALSENO 07	BELL	$e^+ e^- \to \Upsilon(4S)$
8.8 ±0.8 ±1.4	[1,2] AUBERT,B 06Q	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$8.8 \, {}^{+1.5}_{-1.4} \pm 1.3$	[1] AUBERT 03X	BABR	Repl. by AUBERT,B 06Q

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] The result is rescaled by a factor of 2 to convert from K^0_S to K^0.

$\Gamma(D^{*-} D_{s1}(2536)^+, \ D^+_{s1} \to D^{*+} K^0)/\Gamma_{\text{total}}$ Γ_{181}/Γ

VALUE (units 10^{-4})	DOCUMENT ID	TECN	COMMENT
8.0±2.4 OUR AVERAGE			
$7.6^{+4.8}_{-4.2}{}^{+1.6}_{-1.4}$	[1,2] DALSENO 07	BELL	$e^+ e^- \to \Upsilon(4S)$
8.2±2.6±1.2	[1,2] AUBERT,B 06Q	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] The result is rescaled by a factor of 2 to convert from K^0_S to K^0.

$\Gamma(\overline{D}^0 D^0 K^0)/\Gamma_{\text{total}}$ Γ_{182}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID	TECN	COMMENT
0.27±0.10±0.05		[1] DEL-AMO-SA..11B	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<1.4	90	[1] AUBERT 03X	BABR	Repl. by DEL-AMO-SANCHEZ 11B

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^0 \overline{D}^0 K^+ \pi^-)/\Gamma(D^*(2010)^- D^0 K^+)$ $\Gamma_{183}/\Gamma_{176}$

VALUE (%)	DOCUMENT ID	TECN	COMMENT
14.2±1.1±1.0	[1] AAIJ 20AG	LHCB	pp at 7, 8, and 13 TeV

[1] AAIJ 20AG excluded contributions from $B^0 \to D^{*-} D^0 K^+$ transitions with $D^{*-} \to \overline{D}^0 \pi^-$.

$[\Gamma(\overline{D}^0 D^*(2007)^0 K^0) + \Gamma(\overline{D}^*(2007)^0 D^0 K^0)]/\Gamma_{\text{total}}$ Γ_{184}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID	TECN	COMMENT
1.08±0.32±0.36		[1] DEL-AMO-SA..11B	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<3.7	90	[1] AUBERT 03X	BABR	Repl. by DEL-AMO-SANCHEZ 11B

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{D}^*(2007)^0 D^*(2007)^0 K^0)/\Gamma_{\text{total}}$ Γ_{185}/Γ

VALUE (units 10^{-3})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
2.40±0.55±0.67		[1] DEL-AMO-SA..11B	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<6.6	90	[1] AUBERT 03X	BABR	Repl. by DEL-AMO-SANCHEZ 11B

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma((\overline{D}+\overline{D}^*)(D+D^*)K)/\Gamma_{\text{total}}$ Γ_{186}/Γ

VALUE (units 10^{-2})	*DOCUMENT ID*	*TECN*	*COMMENT*
3.68±0.10±0.24	[1] DEL-AMO-SA..11B	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
4.3 ±0.3 ±0.6	[1] AUBERT 03X	BABR	Repl. by DEL-AMO-SANCHEZ 11B

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta_c K^0)/\Gamma_{\text{total}}$ Γ_{187}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*	*TECN*	*COMMENT*
0.82±0.11 OUR AVERAGE			
$0.69^{+0.12}_{-0.10}\pm0.24$	[1] CHILIKIN 19	BELL	$e^+e^- \to \Upsilon(4S)$
$0.61^{+0.21}_{-0.20}\pm0.06$	[2,3] AUBERT 07AV	BABR	$e^+e^- \to \Upsilon(4S)$
$0.92\pm0.16\pm0.05$	[2,4] AUBERT,B 04B	BABR	$e^+e^- \to \Upsilon(4S)$
$1.23\pm0.23^{+0.40}_{-0.41}$	[2] FANG 03	BELL	$e^+e^- \to \Upsilon(4S)$
$1.09^{+0.55}_{-0.42}\pm0.33$	[5] EDWARDS 01	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] CHILIKIN 19 reports $[\Gamma(B^0 \to \eta_c K^0)/\Gamma_{\text{total}}] \times [B(\eta_c(1S) \to \pi^+\pi^- p\overline{p})] = (38.0^{+6.4}_{-2.9}{}^{+1.3}_{-4.7}) \times 10^{-7}$ which we divide by our best value $B(\eta_c(1S) \to \pi^+\pi^- p\overline{p}) = (5.5 \pm 1.9) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] AUBERT 07AV reports $[\Gamma(B^0 \to \eta_c K^0)/\Gamma_{\text{total}}] \times [B(\eta_c(1S) \to p\overline{p})] = (0.83^{+0.28}_{-0.26} \pm 0.05) \times 10^{-6}$ which we divide by our best value $B(\eta_c(1S) \to p\overline{p}) = (1.35 \pm 0.13) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] AUBERT,B 04B reports $[\Gamma(B^0 \to \eta_c K^0)/\Gamma_{\text{total}}] \times [B(\eta_c(1S) \to K\overline{K}\pi)] = (0.0648 \pm 0.0085 \pm 0.0071) \times 10^{-3}$ which we divide by our best value $B(\eta_c(1S) \to K\overline{K}\pi) = (7.0 \pm 0.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[5] EDWARDS 01 assumes equal production of B^0 and B^+ at the $\Upsilon(4S)$. The correlated uncertainties (28.3)% from $B(J/\psi(1S) \to \gamma\eta_c)$ in those modes have been accounted for.

$\Gamma(\eta_c K^0)/\Gamma(J/\psi(1S)K^0)$ $\Gamma_{187}/\Gamma_{201}$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
1.39±0.20±0.45	[1] AUBERT,B 04B	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses BABAR measurement of $B(B^0 \to J/\psi K^0) = (8.5 \pm 0.5 \pm 0.6) \times 10^{-4}$.

$\Gamma(\eta_c(1S)K^+\pi^-)/\Gamma(J/\psi(1S)K^+\pi^-)$ $\Gamma_{188}/\Gamma_{202}$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.56\pm0.03\pm0.05$	[1] AAIJ 18AN	LHCB	pp at 7, 8, 13 TeV

[1] AAIJ 18AN reports $[\Gamma(B^0 \rightarrow \eta_c(1S)K^+\pi^-)/\Gamma(B^0 \rightarrow J/\psi(1S)K^+\pi^-)] \times [B(\eta_c(1S) \rightarrow p\overline{p})] / [B(J/\psi(1S) \rightarrow p\overline{p})] = 0.357 \pm 0.015 \pm 0.008$ which we multiply or divide by our best values $B(\eta_c(1S) \rightarrow p\overline{p}) = (1.35 \pm 0.13) \times 10^{-3}$, $B(J/\psi(1S) \rightarrow p\overline{p}) = (2.120 \pm 0.029) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

$\Gamma(\eta_c(1S)K^*(1410)^0)/\Gamma(\eta_c(1S)K^+\pi^-)$ $\Gamma_{191}/\Gamma_{188}$

VALUE (units 10^{-2})	*DOCUMENT ID*	*TECN*	*COMMENT*
$32\pm24\pm6$	[1] AAIJ 18AN	LHCB	pp at 7, 8, 13 TeV

[1] AAIJ 18AN reports $[\Gamma(B^0 \rightarrow \eta_c(1S)K^*(1410)^0)/\Gamma(B^0 \rightarrow \eta_c(1S)K^+\pi^-)] \times [B(K^*(1410) \rightarrow K\pi)] = 0.021 \pm 0.011 \pm 0.011$ which we divide by our best value $B(K^*(1410) \rightarrow K\pi) = (6.6 \pm 1.3) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\eta_c(1S)K^+\pi^-(\text{NR}))/\Gamma(\eta_c(1S)K^+\pi^-)$ $\Gamma_{189}/\Gamma_{188}$

VALUE (units 10^{-2})	*DOCUMENT ID*	*TECN*	*COMMENT*
$10.3\pm1.4^{+1.0}_{-1.2}$	AAIJ 18AN	LHCB	pp at 7, 8, 13 TeV

$\Gamma(\eta_c(1S)K_0^*(1430)^0)/\Gamma(\eta_c(1S)K^+\pi^-)$ $\Gamma_{192}/\Gamma_{188}$

VALUE (units 10^{-2})	*DOCUMENT ID*	*TECN*	*COMMENT*
$27\pm5\pm3$	[1] AAIJ 18AN	LHCB	pp at 7, 8, 13 TeV

[1] AAIJ 18AN reports $[\Gamma(B^0 \rightarrow \eta_c(1S)K_0^*(1430)^0)/\Gamma(B^0 \rightarrow \eta_c(1S)K^+\pi^-)] \times [B(K_0^*(1430) \rightarrow K\pi)] = 0.253 \pm 0.035^{+0.035}_{-0.028}$ which we divide by our best value $B(K_0^*(1430) \rightarrow K\pi) = (93 \pm 10) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\eta_c(1S)K_2^*(1430)^0)/\Gamma(\eta_c(1S)K^+\pi^-)$ $\Gamma_{193}/\Gamma_{188}$

VALUE (units 10^{-2})	*DOCUMENT ID*	*TECN*	*COMMENT*
$8.2^{+3.6}_{-4.4}\pm0.2$	[1] AAIJ 18AN	LHCB	pp at 7, 8, 13 TeV

[1] AAIJ 18AN reports $[\Gamma(B^0 \rightarrow \eta_c(1S)K_2^*(1430)^0)/\Gamma(B^0 \rightarrow \eta_c(1S)K^+\pi^-)] \times [B(K_2^*(1430) \rightarrow K\pi)] = 0.041 \pm 0.015^{+0.010}_{-0.016}$ which we divide by our best value $B(K_2^*(1430) \rightarrow K\pi) = (49.9 \pm 1.2) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\eta_c(1S)K^*(1680)^0)/\Gamma(\eta_c(1S)K^+\pi^-)$ $\Gamma_{194}/\Gamma_{188}$

VALUE (units 10^{-2})	*DOCUMENT ID*	*TECN*	*COMMENT*
$5.7^{+6.5}_{-6.8}\pm0.4$	[1] AAIJ 18AN	LHCB	pp at 7, 8, 13 TeV

[1] AAIJ 18AN reports $[\Gamma(B^0 \rightarrow \eta_c(1S)K^*(1680)^0)/\Gamma(B^0 \rightarrow \eta_c(1S)K^+\pi^-)] \times [B(K^*(1680) \rightarrow K\pi)] = 0.022 \pm 0.020^{+0.015}_{-0.017}$ which we divide by our best value $B(K^*(1680) \rightarrow K\pi) = (38.7 \pm 2.5) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\eta_c(1S)K_0^*(1950)^0)/\Gamma(\eta_c(1S)K^+\pi^-)$ $\Gamma_{195}/\Gamma_{188}$

VALUE (units 10^{-2})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{7^{+4}_{-6}\pm 2}$	[1] AAIJ	18AN	LHCB	pp at 7, 8, 13 TeV

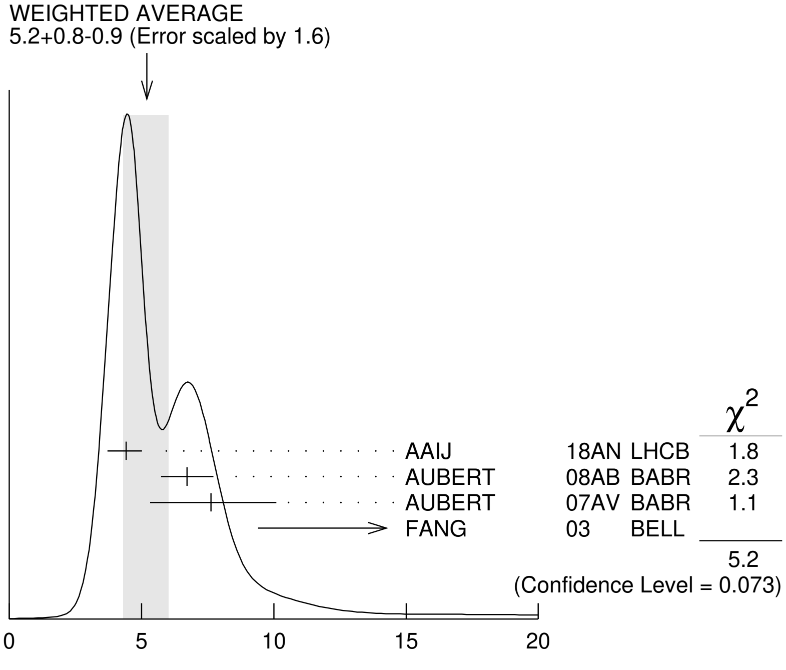
[1] AAIJ 18AN reports $[\Gamma(B^0 \rightarrow \eta_c(1S)K_0^*(1950)^0)/\Gamma(B^0 \rightarrow \eta_c(1S)K^+\pi^-)] \times [B(K_0^*(1950) \rightarrow K^-\pi^+)] = 0.038 \pm 0.018^{+0.014}_{-0.025}$ which we divide by our best value $B(K_0^*(1950) \rightarrow K^-\pi^+) = (52 \pm 14) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(X(4100)^-K^+,\ X^- \rightarrow \eta_c\pi^-)/\Gamma(\eta_c(1S)K^+\pi^-)$ $\Gamma_{190}/\Gamma_{188}$

VALUE (units 10^{-2})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{3.3\pm 1.1^{+1.2}_{-1.1}}$	AAIJ	18AN	LHCB	pp at 7, 8, 13 TeV

$\Gamma(\eta_c K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{196}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{5.2\ ^{+0.8}_{-0.9}}$ **OUR AVERAGE**	Error includes scale factor of 1.6. See the ideogram below.			
$4.42\pm 0.24^{+0.54}_{-0.66}$	[1] AAIJ	18AN	LHCB	pp at 7, 8, 13 TeV
$6.7\ \pm 0.8\ \pm 0.5$	[2,3] AUBERT	08AB	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
$7.6\ ^{+2.4}_{-2.2}\ \pm 0.7$	[4,5] AUBERT	07AV	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
$16.2\ \pm 3.2\ ^{+5.5}_{-6.0}$	[5] FANG	03	BELL	$e^+e^- \rightarrow \Upsilon(4S)$



$\Gamma(\eta_c K^*(892)^0)/\Gamma_{\text{total}}$ (units 10^{-4})

[1] AAIJ 18AN reports $B(B^0 \rightarrow \eta_c K^*(892)^0,\ K^*(892)^0 \rightarrow K^+\pi^-) = (2.95 \pm 0.16^{+0.36}_{-0.44}) \times 10^{-4}$ using the fitted fraction of $0.514 \pm 0.019^{+0.017}_{-0.048}$ from Dalitz decay

of B($B^0 \to \eta_c K^+ \pi^-$)=($5.73 \pm 0.24 \pm 0.67$) $\times 10^{-4}$ and corrected for B($K^*(892)^0 \to K^+ \pi^-$) = 2/3.

[2] AUBERT 08AB reports [$\Gamma\big(B^0 \to \eta_c K^*(892)^0\big)/\Gamma_{\rm total}$] / [B($B^+ \to \eta_c K^+$)] = $0.62 \pm 0.06 \pm 0.05$ which we multiply by our best value B($B^+ \to \eta_c K^+$) = (1.08 ± 0.08) $\times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] Uses the production ratio of $(B^+ B^-)/(B^0 \overline{B}{}^0)$ = 1.026 ± 0.032 at $\Upsilon(4S)$.

[4] AUBERT 07AV reports [$\Gamma\big(B^0 \to \eta_c K^*(892)^0\big)/\Gamma_{\rm total}$] $\times$ [B($\eta_c(1S) \to p\overline{p}$)] = ($1.03^{+0.27}_{-0.24} \pm 0.17$) $\times 10^{-6}$ which we divide by our best value B($\eta_c(1S) \to p\overline{p}$) = ($1.35 \pm 0.13$) $\times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[5] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(\eta_c(2S) K^0_S,\ \eta_c \to p\overline{p}\pi^+\pi^-\big)/\Gamma_{\rm total}$ Γ_{197}/Γ

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{4.2^{+1.4}_{-1.2}{}^{+0.3}_{-0.3}}$	CHILIKIN	19	BELL	$e^+ e^- \to \Upsilon(4S)$

$\Gamma\big(\eta_c(2S) K^{*0}\big)/\Gamma_{\rm total}$ Γ_{198}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<3.9	90	[1] AUBERT	08AB	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Uses the production ratio of $(B^+ B^-)/(B^0 \overline{B}{}^0)$ = 1.026 ± 0.032 at $\Upsilon(4S)$.

$\Gamma\big(h_c(1P) K^0_S\big)/\Gamma_{\rm total}$ Γ_{199}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<1.4 \times 10^{-5}}$	CHILIKIN	19	BELL	$e^+ e^- \to \Upsilon(4S)$

$\Gamma\big(B^0 \to h_c(1P) K^{*0}\big)/\Gamma_{\rm total} \times \Gamma\big(h_c(1P) \to \gamma\eta_c(1S)\big)/\Gamma_{\rm total}$ $\Gamma_{200}/\Gamma \times \Gamma^{h_c(1P)}_{25}/\Gamma^{h_c(1P)}$

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<2.2	90	[1] AUBERT	08AB	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Uses the production ratio of $(B^+ B^-)/(B^0 \overline{B}{}^0)$ = 1.026 ± 0.032 at $\Upsilon(4S)$.

$\Gamma\big(\eta_c K^*(892)^0\big)/\Gamma\big(\eta_c K^0\big)$ $\Gamma_{196}/\Gamma_{187}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{1.33 \pm 0.36^{+0.24}_{-0.33}}$	FANG	03	BELL	$e^+ e^- \to \Upsilon(4S)$

$\Gamma\big(J/\psi(1S) K^0\big)/\Gamma_{\rm total}$ Γ_{201}/Γ

VALUE (units 10^{-4})	*CL%*	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
8.91±0.21 OUR FIT						
8.91±0.21 OUR AVERAGE						
$9.02 \pm 0.10 \pm 0.26$			[1] CHOUDHURY	21	BELL	$e^+ e^- \to \Upsilon(4S)$
$8.1 \pm 0.9 \pm 0.6$			[2] CHILIKIN	19	BELL	$e^+ e^- \to \Upsilon(4S)$
$8.8\ ^{+1.4}_{-1.3} \pm 0.1$			[3,4] AUBERT	07AV	BABR	$e^+ e^- \to \Upsilon(4S)$
$8.69 \pm 0.22 \pm 0.30$			[4] AUBERT	05J	BABR	$e^+ e^- \to \Upsilon(4S)$

$9.5 \pm0.8 \pm0.6$		[4] AVERY 00	CLE2	$e^+e^- \to \Upsilon(4S)$
$11.5 \pm2.3 \pm1.7$		[5] ABE 96H	CDF	$p\overline{p}$ at 1.8 TeV
$6.93\pm4.07\pm0.04$		[6] BORTOLETTO 92	CLEO	$e^+e^- \to \Upsilon(4S)$
$9.24\pm7.21\pm0.05$	2	[7] ALBRECHT 90J	ARG	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$7.9 \pm0.4 \pm0.9$		[4] ABE 03B	BELL	Repl. by CHOUDHURY 21
$8.3 \pm0.4 \pm0.5$		[4] AUBERT 02	BABR	Repl. by AUBERT 05J
$8.5 {}^{+1.4}_{-1.2} \pm0.6$		[4] JESSOP 97	CLE2	Repl. by AVERY 00
$7.5 \pm2.4 \pm0.8$	10	[6] ALAM 94	CLE2	Sup. by JESSOP 97
<50	90	ALAM 86	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] CHOUDHURY 21 uses the relative production fraction of charged (f^{+-}) to neutral (f^{00}) B mesons at $\Upsilon(4S)$ value of $f^{+-}/f^{00} = 1.058 \pm 0.024$.

[2] CHILIKIN 19 reports $[\Gamma(B^0 \to J/\psi(1S) K^0)/\Gamma_{\text{total}}] \times [B(J/\psi(1S) \to p\overline{p}\pi^+\pi^-)] = (48.6{}^{+4.6}_{-4.4}{}^{+2.4}_{-2.6}) \times 10^{-7}$ which we divide by our best value $B(J/\psi(1S) \to p\overline{p}\pi^+\pi^-) = (6.0 \pm 0.5) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] AUBERT 07AV reports $[\Gamma(B^0 \to J/\psi(1S) K^0)/\Gamma_{\text{total}}] \times [B(J/\psi(1S) \to p\overline{p})] = (1.87{}^{+0.28}_{-0.26} \pm 0.07) \times 10^{-6}$ which we divide by our best value $B(J/\psi(1S) \to p\overline{p}) = (2.120 \pm 0.029) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[5] ABE 96H assumes that $B(B^+ \to J/\psi K^+) = (1.02 \pm 0.14) \times 10^{-3}$.

[6] BORTOLETTO 92 reports $(6 \pm 3 \pm 2) \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \to J/\psi(1S) K^0)/\Gamma_{\text{total}}] \times [B(J/\psi(1S) \to e^+e^-)]$ assuming $B(J/\psi(1S) \to e^+e^-) = 0.069 \pm 0.009$, which we rescale to our best value $B(J/\psi(1S) \to e^+e^-) = (5.971 \pm 0.032) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[7] ALBRECHT 90J reports $(8 \pm 6 \pm 2) \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \to J/\psi(1S) K^0)/\Gamma_{\text{total}}] \times [B(J/\psi(1S) \to e^+e^-)]$ assuming $B(J/\psi(1S) \to e^+e^-) = 0.069 \pm 0.009$, which we rescale to our best value $B(J/\psi(1S) \to e^+e^-) = (5.971 \pm 0.032) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(J/\psi(1S) K^+\pi^-)/\Gamma_{\text{total}}$ Γ_{202}/Γ

VALUE (units 10^{-3})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
1.15 ± 0.05 OUR AVERAGE				
$1.15 \pm0.01 \pm0.05$		CHILIKIN 14	BELL	$\overline{B}^0 \to J/\psi K^-\pi^+$
$1.16 \pm0.56 \pm0.01$		[1] BORTOLETTO 92	CLEO	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

1.079 ± 0.011		[2] AUBERT 09AA	BABR	$e^+e^- \to \Upsilon(4S)$
<1.3	90	[3] ALBRECHT 87D	ARG	$e^+e^- \to \Upsilon(4S)$
<6.3	90	GILES 84	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] BORTOLETTO 92 reports $(1.0 \pm 0.4 \pm 0.3) \times 10^{-3}$ from a measurement of $[\Gamma(B^0 \to J/\psi(1S) K^+\pi^-)/\Gamma_{\text{total}}] \times [B(J/\psi(1S) \to e^+e^-)]$ assuming $B(J/\psi(1S) \to e^+e^-)$

= 0.069 ± 0.009, which we rescale to our best value B($J/\psi(1S) \to e^+e^-$) = (5.971 ± 0.032) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Does not report systematic uncertainties.

[3] ALBRECHT 87D assume $B^+B^-/B^0\overline{B}^0$ ratio is 55/45. $K\pi$ system is specifically selected as nonresonant.

$\Gamma(J/\psi(1S)K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{203}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.27 ±0.05 OUR FIT					
1.28 ±0.05 OUR AVERAGE					
1.19 ±0.01 ±0.08		CHILIKIN	14	BELL	$\overline{B}^0 \to J/\psi K^-\pi^+$
1.33 $^{+0.22}_{-0.21}$ ±0.02		[1,2] AUBERT	07AV	BABR	$e^+e^- \to \Upsilon(4S)$
1.309±0.026±0.077		[2] AUBERT	05J	BABR	$e^+e^- \to \Upsilon(4S)$
1.29 ±0.05 ±0.13		[2] ABE	02N	BELL	$e^+e^- \to \Upsilon(4S)$
1.74 ±0.20 ±0.18		[3] ABE	98O	CDF	$p\overline{p}$ 1.8 TeV
1.32 ±0.17 ±0.17		[4] JESSOP	97	CLE2	$e^+e^- \to \Upsilon(4S)$
1.27 ±0.65 ±0.01		[5] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
1.27 ±0.60 ±0.01	6	[6] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$
4.04 ±1.81 ±0.02	5	[7] BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.24 ±0.05 ±0.09		[2] AUBERT	02	BABR	Repl. by AUBERT 05J
1.36 ±0.27 ±0.22		[8] ABE	96H	CDF	Sup. by ABE 98O
1.69 ±0.31 ±0.18	29	[9] ALAM	94	CLE2	Sup. by JESSOP 97
		[10] ALBRECHT	94G	ARG	$e^+e^- \to \Upsilon(4S)$
4.0 ±0.30		[11] ALBAJAR	91E	UA1	$E_{\text{cm}}^{p\overline{p}}$= 630 GeV
3.3 ±0.18	5	[12] ALBRECHT	87D	ARG	$e^+e^- \to \Upsilon(4S)$
4.1 ±0.18	5	[13] ALAM	86	CLEO	Repl. by BEBEK 87

[1] AUBERT 07AV reports [$\Gamma(B^0 \to J/\psi(1S)K^*(892)^0)/\Gamma_{\text{total}}$] × [B($J/\psi(1S) \to p\overline{p}$)] = $(2.82^{+0.30}_{-0.28}{}^{+0.36}_{-0.35}) \times 10^{-6}$ which we divide by our best value B($J/\psi(1S) \to p\overline{p}$) = (2.120 ± 0.029) × 10^{-3}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] ABE 98O reports [B($B^0 \to J/\psi(1S)K^*(892)^0$)]/[B($B^+ \to J/\psi(1S)K^+$)] =1.76 ± 0.14 ± 0.15. We multiply by our best value B($B^+ \to J/\psi(1S)K^+$)=(9.9 ± 1.0) × 10^{-4}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[5] BORTOLETTO 92 reports (1.1 ± 0.5 ± 0.3) × 10^{-3} from a measurement of [$\Gamma(B^0 \to J/\psi(1S)K^*(892)^0)/\Gamma_{\text{total}}$] × [B($J/\psi(1S) \to e^+e^-$)] assuming B($J/\psi(1S) \to e^+e^-$) = 0.069 ± 0.009, which we rescale to our best value B($J/\psi(1S) \to e^+e^-$) = (5.971 ± 0.032) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[6] ALBRECHT 90J reports (1.1 ± 0.5 ± 0.2) × 10^{-3} from a measurement of [$\Gamma(B^0 \to J/\psi(1S)K^*(892)^0)/\Gamma_{\text{total}}$] × [B($J/\psi(1S) \to e^+e^-$)] assuming B($J/\psi(1S) \to e^+e^-$) = 0.069 ± 0.009, which we rescale to our best value B($J/\psi(1S) \to e^+e^-$) =

(5.971 ± 0.032) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[7] BEBEK 87 reports (3.5 ± 1.6 ± 0.3) × 10^{-3} from a measurement of $[\Gamma(B^0 \to J/\psi(1S) K^*(892)^0)/\Gamma_{\text{total}}] \times [B(J/\psi(1S) \to e^+e^-)]$ assuming $B(J/\psi(1S) \to e^+e^-) = 0.069 \pm 0.009$, which we rescale to our best value $B(J/\psi(1S) \to e^+e^-) = (5.971 \pm 0.032) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Updated in BORTOLETTO 92 to use the same assumptions.

[8] ABE 96H assumes that $B(B^+ \to J/\psi K^+) = (1.02 \pm 0.14) \times 10^{-3}$.

[9] The neutral and charged B events together are predominantly longitudinally polarized, $\Gamma_L/\Gamma = 0.080 \pm 0.08 \pm 0.05$. This can be compared with a prediction using HQET, 0.73 (KRAMER 92). This polarization indicates that the $B \to \psi K^*$ decay is dominated by the $CP = -1$ CP eigenstate. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[10] ALBRECHT 94G measures the polarization in the vector-vector decay to be predominantly longitudinal, $\Gamma_T/\Gamma = 0.03 \pm 0.16 \pm 0.15$ making the neutral decay a CP eigenstate when the K^{*0} decays through $K^0_S \pi^0$.

[11] ALBAJAR 91E assumes B^0_d production fraction of 36%.

[12] ALBRECHT 87D assume $B^+B^-/B^0\overline{B}^0$ ratio is 55/45. Superseded by ALBRECHT 90J.

[13] ALAM 86 assumes $B^\pm/B^0$ ratio is 60/40. The observation of the decay $B^+ \to J/\psi K^*(892)^+$ (HAAS 85) has been retracted in this paper.

$\Gamma(J/\psi(1S) K^*(892)^0)/\Gamma(J/\psi(1S) K^0)$ $\Gamma_{203}/\Gamma_{201}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
1.50±0.09 OUR AVERAGE				
1.51±0.05±0.08	AUBERT	05J	BABR	$e^+e^- \to \Upsilon(4S)$
1.39±0.36±0.10	ABE	96Q	CDF	$p\overline{p}$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.49±0.10±0.08	[1] AUBERT	02	BABR	Repl. by AUBERT 05J

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(J/\psi(1S)\eta K^0_S)/\Gamma_{\text{total}}$ Γ_{204}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
5.4 ±0.9 OUR AVERAGE				
5.22±0.78±0.49	[1] IWASHITA	14	BELL	$e^+e^- \to \Upsilon(4S)$
8.4 ±2.6 ±2.7	[1] AUBERT	04Y	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(J/\psi(1S)\eta' K^0_S)/\Gamma_{\text{total}}$ Γ_{205}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<2.5	90	[1] XIE	07	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(J/\psi(1S)\omega K^0)/\Gamma_{\text{total}}$ Γ_{207}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.3±0.3±0.3	[1] DEL-AMO-SA...10B		BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
3.1±0.6±0.3	[1] AUBERT	08W	BABR	Repl. by DEL-AMO-SANCHEZ 10B

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\chi_{c0}(3915),\ \chi_{c0} \to J/\psi\omega)/\Gamma_{\rm total}$ $\qquad\Gamma_{208}/\Gamma$

VALUE (units 10^{-5})	*DOCUMENT ID*	*TECN*	*COMMENT*
$2.1 \pm 0.9 \pm 0.3$	[1] DEL-AMO-SA..10B	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$1.3^{+1.3}_{-1.1} \pm 0.2$	[1,2] AUBERT 08W	BABR	Repl. by DEL-AMO-SANCHEZ 10B

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Corresponds to upper limit of 3.9×10^{-5} at 90% CL.

$\Gamma(J/\psi(1S)\phi K^0)/\Gamma_{\rm total}$ $\qquad\Gamma_{206}/\Gamma$

VALUE (units 10^{-5})	*DOCUMENT ID*	*TECN*	*COMMENT*
4.9 ± 1.0 OUR AVERAGE	Error includes scale factor of 1.3.		
$4.43 \pm 0.76 \pm 0.19$	LEES 15	BABR	$e^+e^- \to \Upsilon(4S)$
$10.2 \pm 3.8 \pm 1.0$	[1] AUBERT 03O	BABR	$e^+e^- \to \Upsilon(4S)$
$8.8^{+3.5}_{-3.0} \pm 1.3$	[2] ANASTASSOV 00	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ANASTASSOV 00 finds 10 events on a background of 0.5 ± 0.2. Assumes equal production of B^0 and B^+ at the $\Upsilon(4S)$, a uniform Dalitz plot distribution, isotropic $J/\psi(1S)$ and ϕ decays, and B($B^+ \to J/\psi(1S)\phi K^+$)= B($B^0 \to J/\psi(1S)\phi K^0$).

$\Gamma(J/\psi(1S)K(1270)^0)/\Gamma_{\rm total}$ $\qquad\Gamma_{209}/\Gamma$

VALUE (units 10^{-3})	*DOCUMENT ID*	*TECN*	*COMMENT*
$1.30 \pm 0.34 \pm 0.32$	[1] ABE 01L	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses the PDG value of B($B^+ \to J/\psi(1S)K^+$) = $(1.00 \pm 0.10) \times 10^{-3}$.

$\Gamma(J/\psi(1S)\pi^0)/\Gamma_{\rm total}$ $\qquad\Gamma_{210}/\Gamma$

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
1.66 ± 0.10 OUR AVERAGE				
$1.62 \pm 0.11 \pm 0.06$		[1] PAL 18	BELL	$e^+e^- \to \Upsilon(4S)$
$1.69 \pm 0.14 \pm 0.07$		[1] AUBERT 08AU	BABR	$e^+e^- \to \Upsilon(4S)$
$2.5^{+1.1}_{-0.9} \pm 0.2$		[1] AVERY 00	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.94 \pm 0.22 \pm 0.17$		[1] AUBERT,B 06B	BABR	Repl. by AUBERT 08AU
$2.3 \pm 0.5 \pm 0.2$		[1] ABE 03B	BELL	Repl. by PAL 18
$2.0 \pm 0.6 \pm 0.2$		[1] AUBERT 02	BABR	Repl. by AUBERT,B 06B
< 32	90	[2] ACCIARRI 97C	L3	
< 5.8	90	BISHAI 96	CLE2	Sup. by AVERY 00
< 690	90	[1] ALEXANDER 95	CLE2	Sup. by BISHAI 96

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ACCIARRI 97C assumes B^0 production fraction (39.5 ± 4.0)% and B_s (12.0 ± 3.0)%.

$\Gamma(J/\psi(1S)\eta)/\Gamma_{\rm total}$ $\qquad\Gamma_{211}/\Gamma$

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
10.8 ± 2.3 OUR AVERAGE		Error includes scale factor of 1.5.		
$7.3 \pm 2.5 \pm 1.3$		[1] AAIJ 15D	LHCB	pp at 7, 8 TeV
$12.3^{+1.8}_{-1.7} \pm 0.7$		[2,3] CHANG 12	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$9.5 \pm 1.7 \pm 0.8$		[3] CHANG	07A	BELL	Repl. by CHANG 12
< 27	90	[3] AUBERT	03O	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
<1200	90	[4] ACCIARRI	97C	L3	

[1] AAIJ 15D reports $[\Gamma(B^0 \rightarrow J/\psi(1S)\eta)/\Gamma_{\rm total}]$ / $[B(B^0_s \rightarrow J/\psi(1S)\eta)] = (1.85 \pm 0.61 \pm 0.14) \times 10^{-2}$ which we multiply by our best value $B(B^0_s \rightarrow J/\psi(1S)\eta) = (4.0 \pm 0.7) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Reconstructs η in $\gamma\gamma$ and $\pi^+\pi^-\pi^0$ decays.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[4] ACCIARRI 97C assumes B^0 production fraction ($39.5 \pm 4.0\%$) and B_s ($12.0 \pm 3.0\%$).

$\Gamma(J/\psi(1S)\pi^+\pi^-)/\Gamma_{\rm total}$ Γ_{212}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
4.00 ± 0.15 OUR AVERAGE				
$3.98 \pm 0.14 \pm 0.07$	[1,2] AAIJ	13M	LHCB	pp at 7 TeV
$4.6 \pm 0.7 \pm 0.6$	[3] AUBERT	03B	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

[1] AAIJ 13M reports $(3.97 \pm 0.09 \pm 0.11 \pm 0.16) \times 10^{-5}$ from a measurement of $[\Gamma(B^0 \rightarrow J/\psi(1S)\pi^+\pi^-)/\Gamma_{\rm total}]$ / $[B(B^+ \rightarrow J/\psi(1S)K^+)]$ assuming $B(B^+ \rightarrow J/\psi(1S)K^+) = (1.018 \pm 0.042) \times 10^{-3}$, which we rescale to our best value $B(B^+ \rightarrow J/\psi(1S)K^+) = (1.020 \pm 0.019) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] AAIJ 13M does not report correlations between various measurements of the $J/\psi\pi\pi$ final state.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(J/\psi(1S)\pi^+\pi^-$ nonresonant$)/\Gamma_{\rm total}$ Γ_{213}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.2	90	[1] AUBERT	07AC	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(J/\psi(1S)f_0(500),\ f_0 \rightarrow \pi\pi)/\Gamma_{\rm total}$ Γ_{214}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$8.8 \pm 0.5^{+1.1}_{-1.5}$	[1] AAIJ	14X	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$6.4^{+2.5}_{-1.1} \pm 0.2$	[2,3] AAIJ	13M	LHCB	Repl. by AAIJ 14X

[1] AAIJ 14X uses Dalitz plot analysis of $B^0 \rightarrow J/\psi\pi^+\pi^-$.

[2] AAIJ 13M reports $(6.4 \pm 0.8^{+2.4}_{-0.8}) \times 10^{-6}$ from a measurement of $[\Gamma(B^0 \rightarrow J/\psi(1S)f_0(500),\ f_0 \rightarrow \pi\pi)/\Gamma_{\rm total}]$ / $[B(B^0 \rightarrow J/\psi(1S)\pi^+\pi^-)]$ assuming $B(B^0 \rightarrow J/\psi(1S)\pi^+\pi^-) = (3.97 \pm 0.09 \pm 0.11 \pm 0.16) \times 10^{-5}$, which we rescale to our best value $B(B^0 \rightarrow J/\psi(1S)\pi^+\pi^-) = (4.00 \pm 0.15) \times 10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] AAIJ 13M does not report correlations between various measurements of the $J/\psi\pi\pi$ final state. Measured in Dalitz plot like analysis of $B^0 \rightarrow J/\psi\pi^+\pi^-$.

$\Gamma\big(J/\psi(1S)\, f_2\big)/\Gamma_{\text{total}}$ Γ_{215}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.33^{+0.05}_{-0.06}}$ **OUR AVERAGE**	Error includes scale factor of 1.5.				
$0.30\pm0.03^{+0.02}_{-0.03}$		[1] AAIJ	14X	LHCB	pp at 7, 8 TeV
$0.42\pm0.06\pm0.02$		[2,3] AAIJ	13M	LHCB	pp at 7 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.5	90	[4,5] AUBERT	07AC	BABR	$e^+e^- \to \Upsilon(4S)$

[1] AAIJ 14X uses Dalitz plot analysis of $B^0 \to J/\psi\pi^+\pi^-$.

[2] AAIJ 13M reports $[\Gamma\big(B^0 \to J/\psi(1S)\, f_2\big)/\Gamma_{\text{total}}] \times [B(f_2(1270) \to \pi\pi)] = (3.5 \pm 0.4 \pm 0.4) \times 10^{-6}$ from a measurement of $[\Gamma\big(B^0 \to J/\psi(1S)\, f_2\big)/\Gamma_{\text{total}}] \times [B(f_2(1270) \to \pi\pi)]$ / $[B(B^0 \to J/\psi(1S)\pi^+\pi^-)]$ assuming $B(B^0 \to J/\psi(1S)\pi^+\pi^-) = (3.97 \pm 0.09 \pm 0.11 \pm 0.16) \times 10^{-5}$, which we rescale to our best values $B(f_2(1270) \to \pi\pi) = (84.3^{+2.9}_{-0.9}) \times 10^{-2}$, $B(B^0 \to J/\psi(1S)\pi^+\pi^-) = (4.00 \pm 0.15) \times 10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

[3] AAIJ 13M does not report correlations between various measurements of the $J/\psi\pi\pi$ final state. Measured in Dalitz plot like analysis of $B^0 \to J/\psi\pi^+\pi^-$.

[4] AUBERT 07AC reports $[\Gamma\big(B^0 \to J/\psi(1S)\, f_2\big)/\Gamma_{\text{total}}] \times [B(f_2(1270) \to \pi\pi)] < 0.46 \times 10^{-5}$ which we divide by our best value $B(f_2(1270) \to \pi\pi) = 84.3 \times 10^{-2}$.

[5] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(J/\psi(1S)\rho^0\big)/\Gamma_{\text{total}}$ Γ_{216}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{2.55^{+0.18}_{-0.16}}$ **OUR AVERAGE**					
$2.50\pm0.10^{+0.18}_{-0.15}$		[1] AAIJ	14X	LHCB	pp at 7, 8 TeV
$2.7\ \pm0.3\ \pm0.2$		[2] AUBERT	07AC	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$2.51^{+0.22}_{-0.23}\pm0.10$		[3,4] AAIJ	13M	LHCB	Repl. by AAIJ 14X
$1.6\ \pm0.6\ \pm0.4$		[2] AUBERT	03B	BABR	Repl. by AUBERT 07AC
<25	90	BISHAI	96	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] AAIJ 14X uses Dalitz plot analysis of $B^0 \to J/\psi\pi^+\pi^-$. We assume $B(\rho(770)^0 \to \pi^+\pi^-) = 100\%$.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] AAIJ 13M reports $(2.49^{+0.20}_{-0.13}{}^{+0.16}_{-0.23}) \times 10^{-5}$ from a measurement of $[\Gamma\big(B^0 \to J/\psi(1S)\rho^0\big)/\Gamma_{\text{total}}]$ / $[B(B^0 \to J/\psi(1S)\pi^+\pi^-)]$ assuming $B(B^0 \to J/\psi(1S)\pi^+\pi^-) = (3.97 \pm 0.09 \pm 0.11 \pm 0.16) \times 10^{-5}$, which we rescale to our best value $B(B^0 \to J/\psi(1S)\pi^+\pi^-) = (4.00 \pm 0.15) \times 10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] AAIJ 13M does not report correlations between various measurements of the $J/\psi\pi\pi$ final state. Measured in Dalitz plot like analysis of $B^0 \to J/\psi\pi^+\pi^-$. Assumes $B(\rho(770)^0 \to \pi\pi) = 100\%$.

$\Gamma\big(J/\psi(1S) f_0(980),\ f_0 \to \pi^+\pi^-\big)/\Gamma_{\text{total}}$ Γ_{217}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<1.1 \times 10^{-6}}$	90	[1] AAIJ	13M	LHCB	pp at 7 TeV

[1] AAIJ 13M does not provide correlations between various measurements of the $J/\psi\pi^+\pi^-$ final state. The measurements were obtained from a Dalitz plot like analysis of $B^0 \to J/\psi\pi^+\pi^-$. Also reports $\Gamma\big(J/\psi(1S) f_0(980),\ f_0 \to \pi^+\pi^-\big)/\Gamma_{\text{total}} = (6.1^{+3.1}_{-2.0}{}^{+1.7}_{-1.4}) \times 10^{-6}$.

$\Gamma\big(J/\psi(1S)\rho(1450)^0,\ \rho^0 \to \pi\pi\big)/\Gamma_{\text{total}}$ Γ_{218}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{2.9^{+1.6}_{-0.7}}$ **OUR AVERAGE**				
$4.6 \pm 1.1 \pm 1.9$	[1] AAIJ	14X	LHCB	pp at 7, 8 TeV
$2.1^{+2.4}_{-0.7} \pm 0.1$	[2,3] AAIJ	13M	LHCB	pp at 7 TeV

[1] AAIJ 14X uses Dalitz plot analysis of $B^0 \to J/\psi\pi^+\pi^-$.

[2] AAIJ 13M reports $(2.1^{+1.0}_{-0.6}{}^{+2.2}_{-0.4}) \times 10^{-6}$ from a measurement of $[\Gamma\big(B^0 \to J/\psi(1S)\rho(1450)^0,\ \rho^0 \to \pi\pi\big)/\Gamma_{\text{total}}]\ /\ [B(B^0 \to J/\psi(1S)\pi^+\pi^-)]$ assuming $B(B^0 \to J/\psi(1S)\pi^+\pi^-) = (3.97 \pm 0.09 \pm 0.11 \pm 0.16) \times 10^{-5}$, which we rescale to our best value $B(B^0 \to J/\psi(1S)\pi^+\pi^-) = (4.00 \pm 0.15) \times 10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] AAIJ 13M does not report correlations between various measurements of the $J/\psi\pi\pi$ final state. Measured in Dalitz plot like analysis of $B^0 \to J/\psi\pi^+\pi^-$.

$\Gamma\big(J/\psi\,\rho(1700)^0,\ \rho^0 \to \pi^+\pi^-\big)/\Gamma_{\text{total}}$ Γ_{219}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{2.0 \pm 0.5 \pm 1.2}$	[1] AAIJ	14X	LHCB	pp at 7, 8 TeV

[1] AAIJ 14X uses Dalitz plot analysis of $B^0 \to J/\psi\pi^+\pi^-$.

$\Gamma\big(J/\psi(1S)\omega\big)/\Gamma_{\text{total}}$ Γ_{220}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{1.8^{+0.7}_{-0.5} \pm 0.1}$		[1] AAIJ	14X	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<27	90	BISHAI	96	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] AAIJ 14X reports $[\Gamma\big(B^0 \to J/\psi(1S)\omega\big)/\Gamma_{\text{total}}] \times [B(\omega(782) \to \pi^+\pi^-)] = (2.7^{+0.8}_{-0.6}{}^{+0.7}_{-0.5}) \times 10^{-7}$ which we divide by our best value $B(\omega(782) \to \pi^+\pi^-) = (1.53^{+0.11}_{-0.13}) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(J/\psi(1S)\omega)/\Gamma(J/\psi(1S)\rho^0)$ $\Gamma_{220}/\Gamma_{216}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.61^{+0.24+0.31}_{-0.14-0.16}}$	[1,2] AAIJ	13M	LHCB	pp at 7 TeV

[1] AAIJ 13M reports $0.61^{+0.24}_{-0.14}{}^{+0.31}_{-0.16}$ from a measurement of $[\Gamma(B^0 \to J/\psi(1S)\omega)/\Gamma(B^0 \to J/\psi(1S)\rho^0)] \times [B(\omega(782) \to \pi^+\pi^-)]$ assuming $B(\omega(782) \to \pi^+\pi^-) = (1.53^{+0.11}_{-0.13}) \times 10^{-2}$.

[2] AAIJ 13M does not report correlations between various measurements of the $J/\psi\pi\pi$ final state. Measured in Dalitz plot like analysis of $B^0 \to J/\psi\pi^+\pi^-$. Assumes $B(\rho(770)^0 \to \pi\pi) = 100\%$.

$\Gamma(J/\psi(1S)\omega)/\Gamma(J/\psi(1S)\rho^0)$ $\Gamma_{220}/\Gamma_{216}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.89\pm0.19^{+0.07}_{-0.13}}$	AAIJ	13A	LHCB	pp at 7 TeV

$\Gamma(J/\psi(1S)K^+K^-)/\Gamma_{\text{total}}$ Γ_{221}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.54±0.35±0.05	[1] AAIJ	13BT	LHCB	pp at 7 TeV

[1] AAIJ 13BT reports $(2.53 \pm 0.31 \pm 0.19) \times 10^{-6}$ from a measurement of $[\Gamma(B^0 \to J/\psi(1S)K^+K^-)/\Gamma_{\text{total}}] / [B(B^+ \to J/\psi(1S)K^+)]$ assuming $B(B^+ \to J/\psi(1S)K^+) = (1.018 \pm 0.042) \times 10^{-3}$, which we rescale to our best value $B(B^+ \to J/\psi(1S)K^+) = (1.020 \pm 0.019) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(J/\psi(1S)a_0(980),\ a_0 \to K^+K^-)/\Gamma_{\text{total}}$ Γ_{222}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
0.470±0.331±0.072	[1] AAIJ	13BT	LHCB	pp at 7 TeV

[1] AAIJ 13BT uses $B(\overline{B}^0 \to J/\psi K^+K^-) = (2.53 \pm 0.31 \pm 0.19) \times 10^{-6}$ to derive this result. It also reports the equivalent upper limit of $< 9.0 \times 10^{-7}$ at 90% CL.

$\Gamma(J/\psi(1S)\phi)/\Gamma_{\text{total}}$ Γ_{223}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{< 1.1 \times 10^{-7}}$	90	AAIJ	21K	LHCB	pp at 7, 8, 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<10.1 \times 10^{-7}$	90	LEES	15	BABR	$e^+e^- \to \Upsilon(4S)$
$< 1.9 \times 10^{-7}$	90	[1] AAIJ	13BT	LHCB	pp at 7 TeV
$< 9.4 \times 10^{-7}$	90	[2] LIU	08I	BELL	$e^+e^- \to \Upsilon(4S)$
$< 9.2 \times 10^{-6}$	90	[2] AUBERT	03O	BABR	$e^+e^- \to \Upsilon(4S)$

[1] AAIJ 13BT uses $B(B^0 \to J/\psi(1S)K^+K^-) = (2.53 \pm 0.31 \pm 0.19) \times 10^{-6}$ and $B(\phi \to K^+K^-) = (48.9 \pm 0.5)\%$ to obtain this result.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(J/\psi(1S)\eta'(958))/\Gamma_{\text{total}}$ Γ_{224}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
7.6±2.2±1.0		[1] AAIJ	15D	LHCB	pp at 7, 8 TeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

< 7.4	90	[2,3] CHANG	12	BELL	$e^+e^- \to \Upsilon(4S)$
<63	90	[3] AUBERT	03O	BABR	$e^+e^- \to \Upsilon(4S)$

[1] AAIJ 15D reports $[\Gamma(B^0 \to J/\psi(1S)\eta'(958))/\Gamma_{\text{total}}] / [B(B^0_s \to J/\psi(1S)\eta')] = (2.28 \pm 0.65 \pm 0.16) \times 10^{-2}$ which we multiply by our best value $B(B^0_s \to J/\psi(1S)\eta') = (3.3 \pm 0.4) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Reconstructs $\eta'(985)$ in $(etapi + pi)^-$ and $\rho(770)$ decays.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(J/\psi(1S)\eta)/\Gamma(J/\psi(1S)\eta'(958))$ — $\Gamma_{211}/\Gamma_{224}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
1.111±0.475±0.062	[1] AAIJ	15D	LHCB	pp at 7, 8 TeV

[1] Uses $J/\psi \to \mu^+\mu^-$, $\eta' \to \rho^0\gamma$, and $\eta' \to \eta\pi^+\pi^-$ decays.

$\Gamma(J/\psi(1S)K^0\pi^+\pi^-)/\Gamma(J/\psi(1S)K^0)$ — $\Gamma_{225}/\Gamma_{201}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.50 ±0.04 OUR AVERAGE				
0.493±0.034±0.027	AAIJ	14L	LHCB	pp at 7 TeV
1.24 ±0.40 ±0.15	AFFOLDER	02B	CDF	$p\overline{p}$ 1.8 TeV

$\Gamma(J/\psi(1S)K^0K^+K^-)/\Gamma_{\text{total}}$ — Γ_{227}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
25 ±7 OUR AVERAGE Error includes scale factor of 1.8.				
34.9±6.7±1.5	LEES	15	BABR	$e^+e^- \to \Upsilon(4S)$
20.2±4.3±1.9	[1] AAIJ	14L	LHCB	pp at 7 TeV

[1] Measured with $B(B^0 \to J/\psi K^0_S K^+K^-) / B(B^0 \to J/\psi K^0_S)$ using PDG 12 for the involved branching fractions.

$\Gamma(J/\psi(1S)K^0K^-\pi^+ + \text{c.c.})/\Gamma_{\text{total}}$ — Γ_{226}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<21 \times 10^{-6}$	90	[1] AAIJ	14L	LHCB	pp at 7 TeV

[1] Measured with $B(B^0 \to J/\psi K^0_S K^\pm\pi^\mp) / B(B^0 \to J/\psi K^0_S\pi^+\pi^-)$ using PDG 12 values for the involved branching fractions.

$\Gamma(J/\psi(1S)K^0\rho^0)/\Gamma_{\text{total}}$ — Γ_{229}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
5.4±2.9±0.9	[1] AFFOLDER	02B	CDF	$p\overline{p}$ 1.8 TeV

[1] Uses $B^0 \to J/\psi(1S)K^0_S$ decay as a reference and $B(B^0 \to J/\psi(1S)K^0) = 8.3 \times 10^{-4}$.

$\Gamma(J/\psi(1S)K^*(892)^+\pi^-)/\Gamma_{\text{total}}$ — Γ_{230}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
7.7±4.1±1.3	[1] AFFOLDER	02B	CDF	$p\overline{p}$ 1.8 TeV

[1] Uses $B^0 \to J/\psi(1S)K^0_S$ decay as a reference and $B(B^0 \to J/\psi(1S)K^0) = 8.3 \times 10^{-4}$.

$\Gamma\big(J/\psi(1S)\pi^+\pi^-\pi^+\pi^-\big)/\Gamma\big(J/\psi(1S)\pi^+\pi^-\big)$ $\Gamma_{231}/\Gamma_{212}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.361±0.017±0.021	[1] AAIJ	14Y	LHCB	pp at 7, 8 TeV

[1] Excludes contributions from $\psi(2S)$ and $\chi_{c1}(3872)$ decaying to $J/\psi(1S)\pi^+\pi^-$.

$\Gamma\big(J/\psi(1S)f_1(1285)\big)/\Gamma_{\text{total}}$ Γ_{232}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{8.4^{+2.1}_{-2.0}\pm0.5}$	[1] AAIJ	14Y	LHCB	pp at 7, 8 TeV

[1] AAIJ 14Y reports $(8.37 \pm 1.95^{+0.71}_{-0.66} \pm 0.35) \times 10^{-6}$ from a measurement of $[\Gamma(B^0 \to J/\psi(1S)f_1(1285))/\Gamma_{\text{total}}] \times [B(f_1(1285) \to 2\pi^+2\pi^-)]$ assuming $B(f_1(1285) \to 2\pi^+2\pi^-) = 0.11^{+0.007}_{-0.006}$, which we rescale to our best value $B(f_1(1285) \to 2\pi^+2\pi^-) = (10.9 \pm 0.6) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma\big(J/\psi(1S)K^*(892)^0\pi^+\pi^-\big)/\Gamma_{\text{total}}$ Γ_{233}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
6.6±1.9±1.1	[1] AFFOLDER	02B	CDF	$p\overline{p}$ 1.8 TeV

[1] Uses $B^0 \to J/\psi(1S)K^*(892)^0$ decay as a reference and $B(B^0 \to J/\psi(1S)K^0) = 12.4 \times 10^{-4}$.

$\Gamma\big(\eta_{c2}(1D)K^0_S,\ \eta_{c2} \to h_c\gamma\big)/\Gamma_{\text{total}}$ Γ_{234}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<3.5 \times 10^{-5}}$	90	CHILIKIN	20	BELL	$e^+e^- \to \Upsilon(4S)$

$\Gamma\big(\eta_{c2}(1D)\pi^-K^+,\ \eta_{c2} \to h_c\gamma\big)/\Gamma_{\text{total}}$ Γ_{235}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<1.0 \times 10^{-4}}$	90	CHILIKIN	20	BELL	$e^+e^- \to \Upsilon(4S)$

$\Gamma\big(\chi_{c1}(3872)K^0\big)/\Gamma_{\text{total}}$ Γ_{238}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.1 ±0.4 OUR AVERAGE					
1.05±0.31±0.34		[1] CHOI	11	BELL	$e^+e^- \to \Upsilon(4S)$
1.4 ±0.7 ±0.7		[2] DEL-AMO-SA...	10B	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<2.8	90	[3,4] BHARDWAJ	11	BELL	$e^+e^- \to \Upsilon(4S)$
2.6 ±1.3 ±0.6		[4,5] AUSHEV	10	BELL	$e^+e^- \to \Upsilon(4S)$
<6	90	[6,7] AUBERT	09B	BABR	$e^+e^- \to \Upsilon(4S)$
6.1 ±3.1 ±1.5		[4,6,8] AUBERT	08B	BABR	$e^+e^- \to \Upsilon(4S)$
<1.6	90	[9] AUBERT	08Y	BABR	$e^+e^- \to \Upsilon(4S)$
<2.7	90	[10] AUBERT	06	BABR	Repl. by AUBERT 08Y
$3.4 \pm1.6\ ^{+1.4}_{-1.3}$		[11,12] GOKHROO	06	BELL	$e^+e^- \to \Upsilon(4S)$

[1] CHOI 11 reports $[\Gamma(B^0 \to \chi_{c1}(3872)K^0)/\Gamma_{\text{total}}] / [B(B^+ \to \chi_{c1}(3872)K^+)] = 0.50 \pm 0.14 \pm 0.04$ which we multiply by our best value $B(B^+ \to \chi_{c1}(3872)K^+) = (2.1 \pm 0.7) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] DEL-AMO-SANCHEZ 10B reports $[\Gamma(B^0 \to \chi_{c1}(3872) K^0)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(3872) \to \omega J/\psi(1S))] = (6 \pm 3 \pm 1) \times 10^{-6}$ which we divide by our best value $B(\chi_{c1}(3872) \to \omega J/\psi(1S)) = (4.3 \pm 2.1) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] BHARDWAJ 11 reports $[\Gamma(B^0 \to \chi_{c1}(3872) K^0)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(3872) \to \gamma J/\psi)] < 2.4 \times 10^{-6}$ which we divide by our best value $B(\chi_{c1}(3872) \to \gamma J/\psi) = 8 \times 10^{-3}$.

[4] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[5] AUSHEV 10 reports $[\Gamma(B^0 \to \chi_{c1}(3872) K^0)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(3872) \to \overline{D}^{*0} D^0)] = (0.97 \pm 0.46 \pm 0.13) \times 10^{-4}$ which we divide by our best value $B(\chi_{c1}(3872) \to \overline{D}^{*0} D^0) = (37 \pm 9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[6] Uses $B(\Upsilon(4S) \to B^+ B^-) = (51.6 \pm 0.6)\%$ and $B(\Upsilon(4S) \to B^0 \overline{B}^0) = (48.4 \pm 0.6)\%$.

[7] AUBERT 09B reports $[\Gamma(B^0 \to \chi_{c1}(3872) K^0)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(3872) \to \gamma J/\psi)] < 4.9 \times 10^{-6}$ which we divide by our best value $B(\chi_{c1}(3872) \to \gamma J/\psi) = 8 \times 10^{-3}$.

[8] AUBERT 08B reports $[\Gamma(B^0 \to \chi_{c1}(3872) K^0)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(3872) \to \overline{D}^{*0} D^0)] = (2.22 \pm 1.05 \pm 0.42) \times 10^{-4}$ which we divide by our best value $B(\chi_{c1}(3872) \to \overline{D}^{*0} D^0) = (37 \pm 9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[9] AUBERT 08Y reports $[\Gamma(B^0 \to \chi_{c1}(3872) K^0)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(3872) \to \pi^+ \pi^- J/\psi(1S))] < 6.0 \times 10^{-6}$ which we divide by our best value $B(\chi_{c1}(3872) \to \pi^+ \pi^- J/\psi(1S)) = 3.8 \times 10^{-2}$.

[10] AUBERT 06 reports $[\Gamma(B^0 \to \chi_{c1}(3872) K^0)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(3872) \to \pi^+ \pi^- J/\psi(1S))] < 10.3 \times 10^{-6}$ which we divide by our best value $B(\chi_{c1}(3872) \to \pi^+ \pi^- J/\psi(1S)) = 3.8 \times 10^{-2}$.

[11] GOKHROO 06 reports $[\Gamma(B^0 \to \chi_{c1}(3872) K^0)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(3872) \to D^0 \overline{D}^0 \pi^0)] = (1.66 \pm 0.70^{+0.32}_{-0.37}) \times 10^{-4}$ which we divide by our best value $B(\chi_{c1}(3872) \to D^0 \overline{D}^0 \pi^0) = (49^{+18}_{-20}) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[12] Measure the near-threshold enhancements in the $(D^0 \overline{D}^0 \pi^0)$ system at a mass $3875.2 \pm 0.7^{+0.3}_{-1.6} \pm 0.8$ MeV/c^2.

$\Gamma(\chi_{c1}(3872)^- K^+)/\Gamma_{\text{total}}$ Γ_{236}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<5 \times 10^{-4}$	90	[1] AUBERT	06E	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Perform measurements of absolute branching fractions using a missing mass technique.

$\Gamma(\chi_{c1}(3872)^- K^+,\ \chi_{c1}(3872)^- \to J/\psi(1S)\pi^- \pi^0)/\Gamma_{\text{total}}$ Γ_{237}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<4.2	90	[1,2] CHOI	11	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<5.4	90	[2,3] AUBERT	05B	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes $\pi^+ \pi^0$ originates from ρ^+.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] The isovector-X hypothesis is excluded with a likelihood test at 1×10^{-4} level.

$\Gamma(\chi_{c1}(3872)K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{239}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
1.0±0.4±0.3		[1] BALA	15	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<3.3	90	[2,3] AUBERT	09B	BABR	$e^+e^- \to \Upsilon(4S)$
<1.0	90	[3,4] AUBERT	09B	BABR	$e^+e^- \to \Upsilon(4S)$

[1] BALA 15 reports $[\Gamma(B^0 \to \chi_{c1}(3872)K^*(892)^0)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(3872) \to \pi^+\pi^- J/\psi(1S))] = (4.0 \pm 1.5 \pm 0.3) \times 10^{-6}$ which we divide by our best value $B(\chi_{c1}(3872) \to \pi^+\pi^- J/\psi(1S)) = (3.8 \pm 1.2) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] AUBERT 09B reports $[\Gamma(B^0 \to \chi_{c1}(3872)K^*(892)^0)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(3872) \to \gamma J/\psi)] < 2.8 \times 10^{-6}$ which we divide by our best value $B(\chi_{c1}(3872) \to \gamma J/\psi) = 8 \times 10^{-3}$.

[3] Uses $B(\Upsilon(4S) \to B^+B^-) = (51.6 \pm 0.6)\%$ and $B(\Upsilon(4S) \to B^0\overline{B}^0) = (48.4 \pm 0.6)\%$.

[4] AUBERT 09B reports $[\Gamma(B^0 \to \chi_{c1}(3872)K^*(892)^0)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(3872) \to \gamma\psi(2S))] < 4.4 \times 10^{-6}$ which we divide by our best value $B(\chi_{c1}(3872) \to \gamma\psi(2S)) = 4.5 \times 10^{-2}$.

$\Gamma(\chi_{c1}(3872)K^+\pi^-)/\Gamma_{\text{total}}$ Γ_{240}/Γ

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
2.1±0.4±0.7	[1,2] BALA	15	BELL	$e^+e^- \to \Upsilon(4S)$

[1] BALA 15 reports $[\Gamma(B^0 \to \chi_{c1}(3872)K^+\pi^-)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(3872) \to \pi^+\pi^- J/\psi(1S))] = (7.9 \pm 1.3 \pm 0.4) \times 10^{-6}$ which we divide by our best value $B(\chi_{c1}(3872) \to \pi^+\pi^- J/\psi(1S)) = (3.8 \pm 1.2) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\chi_{c1}(3872)\gamma)/\Gamma_{\text{total}}$ Γ_{241}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{<1.3 \times 10^{-5}}$	90	[1,2] CHOU	19	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at $\Upsilon(4S)$.

[2] CHOU 19 reports $[\Gamma(B^0 \to \chi_{c1}(3872)\gamma)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(3872) \to \pi^+\pi^- J/\psi(1S))] < 5.1 \times 10^{-7}$ which we divide by our best value $B(\chi_{c1}(3872) \to \pi^+\pi^- J/\psi(1S)) = 3.8 \times 10^{-2}$.

$\Gamma(Z_c(4430)^\pm K^\mp,\ Z_c^\pm \to \psi(2S)\pi^\pm)/\Gamma_{\text{total}}$ Γ_{242}/Γ

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{6.0^{+1.7}_{-2.0}{}^{+2.5}_{-1.4}}$		CHILIKIN	13	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<3.1	95	[1] AUBERT	09AA	BABR	$e^+e^- \to \Upsilon(4S)$
$3.2^{+1.8}_{-0.9}{}^{+5.3}_{-1.6}$		[1] MIZUK	09	BELL	$e^+e^- \to \Upsilon(4S)$
$4.1 \pm 1.0 \pm 1.4$		[1,2] CHOI	08	BELL	Repl. by MIZUK 09

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Establishes the $(Z_c4430)^+$ with a significance of 6.5 sigma. Needs confirmation.

$\Gamma(Z_c(4430)^{\pm} K^{\mp},\ Z_c^{\pm} \to J/\psi \pi^{\pm})/\Gamma_{\text{total}}$ Γ_{243}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{5.4^{+4.0}_{-1.0}{}^{+1.1}_{-0.6}}$		CHILIKIN	14	BELL	$\overline{B}^0 \to J/\psi K^- \pi^+$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<4	95	[1] AUBERT	09AA	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(Z_c(3900)^{\pm} K^{\mp},\ Z_c^{\pm} \to J/\psi \pi^{\pm})/\Gamma_{\text{total}}$ Γ_{244}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<9 \times 10^{-7}}$	CHILIKIN	14	BELL	$\overline{B}^0 \to J/\psi K^- \pi^+$

$\Gamma(Z_c(4200)^{\pm} K^{\mp},\ X^{\pm} \to J/\psi \pi^{\pm})/\Gamma_{\text{total}}$ Γ_{245}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{2.2^{+0.7}_{-0.5}{}^{+1.1}_{-0.6}}$	CHILIKIN	14	BELL	$\overline{B}^0 \to J/\psi K^- \pi^+$

$\Gamma(Z_c(3900)^{\pm} K^{\mp},\ Z_c^{\pm} \to J/\psi \pi^{\pm})/\Gamma(J/\psi(1S) K^*(892)^0)$ $\Gamma_{244}/\Gamma_{203}$

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<1.5 \times 10^{-2}}$	90	ABAZOV	18B	D0	$p\overline{p}$ at 1.96 TeV

$\Gamma(J/\psi(1S) p \overline{p})/\Gamma_{\text{total}}$ Γ_{246}/Γ

VALUE (units 10^{-7})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
4.51±0.40±0.44		[1] AAIJ	19U	LHCB	pp at 7, 8, 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
< 5.2	90	[2] AAIJ	13Z	LHCB	Repl. by AAIJ 19U
< 8.3	90	[3] XIE	05	BELL	$e^+ e^- \to \Upsilon(4S)$
<19	90	[3] AUBERT	03K	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Measured relative to $B_s^0 \to J/\psi \phi$ assuming $\mathrm{B}(B_s^0 \to J/\psi \phi) = (10.5 \pm 0.13 \pm 0.64) \times 10^{-4}$ and taking into account small $K^+ K^-$ *S*-wave contribution. Measurement assumes $f_s/f_d = 0.259 \pm 0.015$ for 7, 8 TeV data and f_s/f_d multiplied by 1.068 ± 0.046 for 13 TeV data.

[2] Uses $\mathrm{B}(B_s^0 \to J/\psi(1S)\pi^+\pi^-) = (1.98 \pm 0.20) \times 10^{-4}$.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(J/\psi(1S)\gamma)/\Gamma_{\text{total}}$ Γ_{247}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.5	90	[1] AAIJ	15BB	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<1.6	90	[2] AUBERT,B	04T	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Branching fractions of normalization modes $B^0 \to J/\psi \gamma X$ taken from PDG 14. Uses $f_s/f_d = 0.259 \pm 0.015$.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(J/\psi \mu^+ \mu^-,\ J/\psi \to \mu^+ \mu^-)/\Gamma_{\text{total}}$ Γ_{248}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<1.0 \times 10^{-9}}$	95	AAIJ	22Q	LHCB	pp at 7, 8, 13 TeV

$\Gamma(J/\psi(1S)\overline{D}^0)/\Gamma_{\text{total}}$ Γ_{249}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.3	90	[1] AUBERT	05U	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<2.0	90	[1] ZHANG	05B	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\psi(2S)\pi^0)/\Gamma_{\text{total}}$ Γ_{250}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.17±0.17±0.08	[1] CHOBANOVA	16	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\psi(2S)K^0)/\Gamma_{\text{total}}$ Γ_{251}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
5.8 ±0.5 OUR FIT					
5.8 ±0.5 OUR AVERAGE					
4.7 ±0.7 ±0.7		[1] AAIJ	14L	LHCB	pp at 7 TeV
6.46±0.65±0.51		[2] AUBERT	05J	BABR	$e^+e^- \to \Upsilon(4S)$
6.7 ±1.1		[2] ABE	03B	BELL	$e^+e^- \to \Upsilon(4S)$
5.0 ±1.1 ±0.6		[2] RICHICHI	01	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
6.9 ±1.1 ±1.1		[2] AUBERT	02	BABR	Repl. by AUBERT 05J
< 8	90	[2] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$
<15	90	[2] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
<28	90	[2] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Measured with B($B^0 \to \psi(2S)K^0_S$) × B($\psi(2S) \to J/\psi\pi^+\pi^-$) / B($B^0 \to J/\psi K^0_S$) using PDG 12 values for the involved branching fractions.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\psi(2S)K^0\pi^+\pi^-)/\Gamma(\psi(2S)K^0)$ $\Gamma_{252}/\Gamma_{251}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.480±0.013±0.032	TUMASYAN	22AI	CMS	pp at 13 TeV

$\Gamma(\psi(2S)K^0)/\Gamma(J/\psi(1S)K^0)$ $\Gamma_{251}/\Gamma_{201}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.82±0.13±0.12	[1] AUBERT	02	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\psi(3770)K^0,\ \psi \to \overline{D}^0D^0)/\Gamma_{\text{total}}$ Γ_{253}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.23	90	[1] AUBERT	08B	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\psi(3770)K^0,\ \psi \to D^-D^+)/\Gamma_{\text{total}}$ Γ_{254}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.88	90	[1] AUBERT	08B	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\psi(2S)\pi^+\pi^-)/\Gamma(J/\psi(1S)\pi^+\pi^-)$ $\Gamma_{255}/\Gamma_{212}$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.56±0.07±0.05	[1] AAIJ 13AA	LHCB	pp at 7 TeV

[1] Assuming lepton universality for dimuon decay modes of J/ψ and $\psi(2S)$ mesons, the ratio B($J/\psi \rightarrow \mu^+\mu^-$)/B($\psi(2S) \rightarrow \mu^+\mu^-$) = B($J/\psi \rightarrow e^+e^-$)/B($\psi(2S) \rightarrow e^+e^-$) = 7.69 ± 0.19 was used.

$\Gamma(\psi(2S)K^+\pi^-)/\Gamma_{\text{total}}$ Γ_{256}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
5.80±0.39		[1,2] CHILIKIN 13	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5.57±0.16		[3] AUBERT 09AA	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
5.68±0.13±0.42		[2] MIZUK 09	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
<10	90	[2] ALBRECHT 90J	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Combines measurements with $\psi(2S) \rightarrow \ell^+\ell^-$ with measurement from MIZUK 09 which uses $\psi(2S) \rightarrow J/\psi\pi^+\pi^-$.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] Does not report systematic uncertainties.

$\Gamma(\psi(2S)K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{257}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
5.9 ±0.4 OUR FIT				
6.0 $^{+0.5}_{-0.7}$ OUR AVERAGE Error includes scale factor of 1.1.				
$5.55^{+0.22}_{-0.23}{}^{+0.41}_{-0.84}$		[1] CHILIKIN 13	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
6.49±0.59±0.97		[1] AUBERT 05J	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
7.6 ±1.1 ±1.0		[1] RICHICHI 01	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
9.0 ±2.2 ±0.9		[2] ABE 98O	CDF	$p\overline{p}$ 1.8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$5.52^{+0.35}_{-0.32}{}^{+0.53}_{-0.58}$		[1] MIZUK 09	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
<19	90	[1] ALAM 94	CLE2	Repl. by RICHICHI 01
14 ±8 ±4		[1] BORTOLETTO 92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
<23	90	[1] ALBRECHT 90J	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ABE 98O reports [B($B^0 \rightarrow \psi(2S)K^*(892)^0$)]/[B($B^+ \rightarrow J/\psi(1S)K^+$)] =0.908 ± 0.194±0.10. We multiply by our best value B($B^+ \rightarrow J/\psi(1S)K^+$)=$(9.9\pm1.0)\times10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\psi(2S)K^*(892)^0)/\Gamma(J/\psi(1S)K^*(892)^0)$ $\Gamma_{257}/\Gamma_{203}$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.487±0.018±0.011	[1,2] AAIJ 12L	LHCB	pp at 7 TeV

[1] AAIJ 12L reports 0.476 ± 0.014 ± 0.010 ± 0.012 from a measurement of [$\Gamma(B^0 \rightarrow \psi(2S)K^*(892)^0)/\Gamma(B^0 \rightarrow J/\psi(1S)K^*(892)^0)$] × [B($J/\psi(1S) \rightarrow e^+e^-$)] / [B($\psi(2S) \rightarrow e^+e^-$)] assuming B($J/\psi(1S) \rightarrow e^+e^-$) = $(5.94 \pm 0.06) \times 10^{-2}$,B($\psi(2S) \rightarrow e^+e^-$) = $(7.72 \pm 0.17) \times 10^{-3}$, which we rescale to our best

values B($J/\psi(1S) \to e^+e^-$) = $(5.971 \pm 0.032) \times 10^{-2}$, B($\psi(2S) \to e^+e^-$) = $(7.93 \pm 0.17) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

[2] Assumes B($J/\psi \to \mu^+\mu^-$) / B($\psi(2S) \to \mu^+\mu^-$) = B($J/\psi \to e^+e^-$) / B($\psi(2S) \to e^+e^-$) = 7.69 ± 0.19.

$\Gamma(\psi(2S)K^*(892)^0)/\Gamma(\psi(2S)K^0)$ $\Gamma_{257}/\Gamma_{251}$

VALUE	DOCUMENT ID		TECN	COMMENT
1.02±0.10 OUR FIT				
1.00±0.14±0.09	AUBERT	05J	BABR	$e^+e^- \to \Upsilon(4S)$

$\Gamma(\chi_{c0}K^0)/\Gamma_{\text{total}}$ Γ_{258}/Γ

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{195^{+42}_{-36}\pm11}$		[1] AAIJ	18F	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$145^{+103}_{-85}\pm8$		[2,3] LEES	12I	BABR	$e^+e^- \to \Upsilon(4S)$
$148\pm30\pm13$		[2,4] LEES	12O	BABR	$e^+e^- \to \Upsilon(4S)$
$142^{+55}_{-44}\pm22$		[2,5] AUBERT	09AU	BABR	$e^+e^- \to \Upsilon(4S)$
<113	90	[5] GARMASH	07	BELL	$e^+e^- \to \Upsilon(4S)$
<1240	90	[2] AUBERT	05K	BABR	$e^+e^- \to \Upsilon(4S)$
<500	90	[6] EDWARDS	01	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] AAIJ 18F uses Dalitz plot analysis of the $B^0 \to K^0_S\pi^+\pi^-$ final state decays. For the branching fraction of the reference mode, the PDG 18 average B($B^0 \to K^0_S\pi^+\pi^-$) = $(4.96 \pm 0.20) \times 10^{-5}$ is used. We compute B($B^0 \to \chi_{c0}K^0$) using the PDG value B($\chi_{c0} \to \pi\pi$) = $(8.51 \pm 0.33) \times 10^{-3}$ and 2/3 for the $\pi^+\pi^-$ fraction. Our first error is their experiment's error and the second error is systematic error from using our best value.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] LEES 12I reports $[\Gamma(B^0 \to \chi_{c0}K^0)/\Gamma_{\text{total}}] \times [\text{B}(\chi_{c0}(1P) \to K^0_S K^0_S)] = (0.46^{+0.25}_{-0.17} \pm 0.21) \times 10^{-6}$ which we divide by our best value B($\chi_{c0}(1P) \to K^0_S K^0_S$) = $(3.16 \pm 0.17) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] Measured in the $B^0 \to K^0_S K^+K^-$ decay.

[5] Uses Dalitz plot analysis of the $B^0 \to K^0\pi^+\pi^-$ final state decays.

[6] EDWARDS 01 assumes equal production of B^0 and B^+ at the $\Upsilon(4S)$. The correlated uncertainties (28.3)% from B($J/\psi(1S) \to \gamma\eta_c$) in those modes have been accounted for.

$\Gamma(\chi_{c0}K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{259}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
1.7±0.3±0.2		[1] AUBERT	08BD	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<7.7	90	[1] AUBERT	05K	BABR	Repl. by AUBERT 08BD

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\chi_{c1}\pi^0)/\Gamma_{\text{total}}$ Γ_{260}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
$1.12\pm0.25\pm0.12$	[1] KUMAR	08	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\chi_{c1}K^0)/\Gamma_{\text{total}}$ Γ_{261}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
3.95 ± 0.27 OUR AVERAGE					
$15\ {}^{+5}_{-4}\ \pm6$		[1] CHILIKIN	19	BELL	$e^+e^- \to \Upsilon(4S)$
$3.78\,{}^{+0.17}_{-0.16}\pm0.33$		[2] BHARDWAJ	11	BELL	$e^+e^- \to \Upsilon(4S)$
$4.2\ \pm0.3\ \pm0.3$		[3] AUBERT	09B	BABR	$e^+e^- \to \Upsilon(4S)$
$3.1\ {}^{+1.5}_{-1.1}\ \pm0.1$		[4] AVERY	00	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$3.51\pm0.33\pm0.45$		[2] SONI	06	BELL	Repl. by BHARDWAJ 11
$4.53\pm0.41\pm0.51$		[2] AUBERT	05J	BABR	Repl. by AUBERT 09B
$4.3\ \pm1.4\ \pm0.1$		[5] AUBERT	02	BABR	Repl. by AUBERT 05J
<27	90	[2] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] CHILIKIN 19 reports $[\Gamma(B^0 \to \chi_{c1}K^0)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(1P) \to p\overline{p}\pi^+\pi^-)] = (7.4{}^{+2.4}_{-2.0}{}^{+0.6}_{-0.4}) \times 10^{-7}$ which we divide by our best value $B(\chi_{c1}(1P) \to p\overline{p}\pi^+\pi^-) = (5.0 \pm 1.9) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] Uses $\chi_{c1,2} \to J/\psi\gamma$. Assumes $B(\Upsilon(4S) \to B^+B^-) = (51.6\pm0.6)\%$ and $B(\Upsilon(4S) \to B^0\overline{B}^0) = (48.4 \pm 0.6)\%$.

[4] AVERY 00 reports $(3.9{}^{+1.9}_{-1.3}\pm0.4)\times10^{-4}$ from a measurement of $[\Gamma(B^0 \to \chi_{c1}K^0)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(1P) \to \gamma J/\psi(1S))]$ assuming $B(\chi_{c1}(1P) \to \gamma J/\psi(1S)) = 0.273 \pm 0.016$, which we rescale to our best value $B(\chi_{c1}(1P) \to \gamma J/\psi(1S)) = (34.3 \pm 1.0) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[5] AUBERT 02 reports $(5.4\pm1.4\pm1.1)\times10^{-4}$ from a measurement of $[\Gamma(B^0 \to \chi_{c1}K^0)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(1P) \to \gamma J/\psi(1S))]$ assuming $B(\chi_{c1}(1P) \to \gamma J/\psi(1S)) = 0.273 \pm 0.016$, which we rescale to our best value $B(\chi_{c1}(1P) \to \gamma J/\psi(1S)) = (34.3 \pm 1.0) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\chi_{c1}K^0)/\Gamma(J/\psi(1S)K^0)$ $\Gamma_{261}/\Gamma_{201}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.53\pm0.16\pm0.01$	[1] AUBERT	02	BABR	$e^+e^- \to \Upsilon(4S)$

[1] AUBERT 02 reports $0.66 \pm 0.11 \pm 0.17$ from a measurement of $[\Gamma(B^0 \to \chi_{c1}K^0)/\Gamma(B^0 \to J/\psi(1S)K^0)] \times [B(\chi_{c1}(1P) \to \gamma J/\psi(1S))]$ assuming $B(\chi_{c1}(1P) \to \gamma J/\psi(1S)) = 0.273 \pm 0.016$, which we rescale to our best value $B(\chi_{c1}(1P) \to \gamma J/\psi(1S)) = (34.3 \pm 1.0) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\chi_{c1}\pi^- K^+)/\Gamma_{\text{total}}$ Γ_{262}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*	*TECN*	*COMMENT*
$4.97 \pm 0.12 \pm 0.28$	[1] BHARDWAJ 16	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$3.83 \pm 0.10 \pm 0.39$	[1] MIZUK 08	BELL	Repl. by BHARDWAJ 16

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\chi_{c1}\pi^- K^+)/\Gamma(J/\psi(1S) K^+\pi^-)$ $\Gamma_{262}/\Gamma_{202}$

VALUE	*DOCUMENT ID*	*TECN*
$0.476 \pm 0.021 \pm 0.013$	[1] LEES 12B	BABR

[1] LEES 12B reports $0.474 \pm 0.013 \pm 0.026$ from a measurement of $[\Gamma(B^0 \to \chi_{c1}\pi^- K^+)/\Gamma(B^0 \to J/\psi(1S) K^+\pi^-)] \times [B(\chi_{c1}(1P) \to \gamma J/\psi(1S))]$ assuming $B(\chi_{c1}(1P) \to \gamma J/\psi(1S)) = (34.4 \pm 1.5) \times 10^{-2}$, which we rescale to our best value $B(\chi_{c1}(1P) \to \gamma J/\psi(1S)) = (34.3 \pm 1.0) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\chi_{c1} K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{263}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
2.38 ± 0.19 OUR FIT Error includes scale factor of 1.2.				
$2.22^{+0.40}_{-0.31}$ OUR AVERAGE Error includes scale factor of 1.6.				
$2.5 \pm 0.2 \pm 0.2$		[1] AUBERT 09B	BABR	$e^+ e^- \to \Upsilon(4S)$
$1.73^{+0.15}_{-0.12}{}^{+0.34}_{-0.22}$		[2] MIZUK 08	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$3.14 \pm 0.34 \pm 0.72$		[2] SONI 06	BELL	Repl. by MIZUK 08
$3.27 \pm 0.42 \pm 0.64$		[2] AUBERT 05J	BABR	Repl. by AUBERT 09B
$3.8 \pm 1.3 \pm 0.1$		[3] AUBERT 02	BABR	Repl. by AUBERT 05J
<21	90	[4] ALAM 94	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] Uses $\chi_{c1,2} \to J/\psi\gamma$. Assumes $B(\Upsilon(4S) \to B^+ B^-) = (51.6 \pm 0.6)\%$ and $B(\Upsilon(4S) \to B^0 \overline{B}^0) = (48.4 \pm 0.6)\%$.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] AUBERT 02 reports $(4.8 \pm 1.4 \pm 0.9) \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \to \chi_{c1} K^*(892)^0)/\Gamma_{\text{total}}] \times [B(\chi_{c1}(1P) \to \gamma J/\psi(1S))]$ assuming $B(\chi_{c1}(1P) \to \gamma J/\psi(1S)) = 0.273 \pm 0.016$, which we rescale to our best value $B(\chi_{c1}(1P) \to \gamma J/\psi(1S)) = (34.3 \pm 1.0) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[4] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\chi_{c1} K^*(892)^0)/\Gamma(J/\psi(1S) K^*(892)^0)$ $\Gamma_{263}/\Gamma_{203}$

VALUE (units 10^{-2})	*DOCUMENT ID*	*TECN*	*COMMENT*
18.8 ± 1.5 OUR FIT Error includes scale factor of 1.1.			
$19.8 \pm 1.1 \pm 1.5$	[1] AAIJ 13AC	LHCB	pp at 7 TeV

[1] Uses $B(\chi_{c1} \to J/\psi\gamma) = (34.4 \pm 1.5)\%$.

$\Gamma(\chi_{c1} K^*(892)^0)/\Gamma(\chi_{c1} K^0)$ $\Gamma_{263}/\Gamma_{261}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.72\pm0.11\pm0.12$	AUBERT	05J	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.89\pm0.34\pm0.17$	[1] AUBERT	02	BABR	Repl. by AUBERT 05J

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(X(4051)^- K^+,\ X^- \to \chi_{c1}\pi^-)/\Gamma_{\text{total}}$ Γ_{264}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$3.0^{+1.5+3.7}_{-0.8-1.6}$		[1] MIZUK	08	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<1.8	90	[1,2] LEES	12B	BABR	

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses $\chi_{c1} \to J/\psi\gamma$ mode. Uses $\chi_{c1} \to J/\psi\gamma$ mode. Finds a good description of the data without this $B^0 \to X(4051)^+ K^-$ decay mode in a fit.

$\Gamma(X(4248)^- K^+,\ X^- \to \chi_{c1}\pi^-)/\Gamma_{\text{total}}$ Γ_{265}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$4.0^{+2.3+19.7}_{-0.9-\ \ 0.5}$		[1] MIZUK	08	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<4.0	90	[1,2] LEES	12B	BABR	

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses $\chi_{c1} \to J/\psi\gamma$ mode. Finds a good description of the data without this $B^0 \to X(4248)^+ K^-$ decay mode in a fit.

$\Gamma(\chi_{c1}\pi^+\pi^- K^0)/\Gamma_{\text{total}}$ Γ_{266}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
$3.16\pm0.35\pm0.32$	[1] BHARDWAJ	16	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\chi_{c1}\pi^-\pi^0 K^+)/\Gamma_{\text{total}}$ Γ_{267}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
$3.52\pm0.52\pm0.24$	[1] BHARDWAJ	16	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\chi_{c2} K^0)/\Gamma_{\text{total}}$ Γ_{268}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<1.5\times10^{-5}$	90	[1] BHARDWAJ	11	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<2.8\times10^{-5}$	90	[2] AUBERT	09B	BABR	$e^+e^- \to \Upsilon(4S)$
$<2.6\times10^{-5}$	90	[1] SONI	06	BELL	Repl. by BHARDWAJ 11
$<4.1\times10^{-5}$	90	[1] AUBERT	05K	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses $\chi_{c1,2} \to J/\psi\gamma$. Assumes B($\Upsilon(4S) \to B^+B^-$) = (51.6 ± 0.6)% and B($\Upsilon(4S) \to B^0\overline{B}^0$) = (48.4 ± 0.6)%.

$\Gamma(\chi_{c2} K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{269}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
4.9±1.2 OUR FIT Error includes scale factor of 1.1.				
6.6±1.8±0.5		[1] AUBERT 09B	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<7.1	90	[2] SONI 06	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
<3.6	90	[2] AUBERT 05K	BABR	Repl. by AUBERT 09B

[1] Uses $\chi_{c1,2} \rightarrow J/\psi\gamma$. Assumes B($\Upsilon(4S) \rightarrow B^+B^-$) = (51.6 ± 0.6)% and B($\Upsilon(4S) \rightarrow B^0\overline{B}^0$) = (48.4 ± 0.6)%.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\chi_{c2} K^*(892)^0)/\Gamma(\chi_{c1} K^*(892)^0)$ $\Gamma_{269}/\Gamma_{263}$

VALUE (units 10^{-2})	*DOCUMENT ID*	*TECN*	*COMMENT*
20 ±5 OUR FIT Error includes scale factor of 1.1.			
17.1±5.0±2.0	[1] AAIJ 13AC	LHCB	pp at 7 TeV

[1] Uses B($\chi_{c1} \rightarrow J/\psi\gamma$)/B($\chi_{c2} \rightarrow J/\psi\gamma$) = 1.76 ± 0.11.

$\Gamma(\chi_{c2}\pi^- K^+)/\Gamma_{\text{total}}$ Γ_{270}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*	*TECN*	*COMMENT*
0.72±0.09±0.05	[1] BHARDWAJ 16	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\chi_{c2}\pi^+\pi^- K^0)/\Gamma_{\text{total}}$ Γ_{271}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<1.70 \times 10^{-4}$	90	[1] BHARDWAJ 16	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\chi_{c2}\pi^-\pi^0 K^+)/\Gamma_{\text{total}}$ Γ_{272}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<0.74 \times 10^{-4}$	90	[1] BHARDWAJ 16	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\psi(4660) K^0,\ \psi \rightarrow \Lambda_c^+ \Lambda_c^-)/\Gamma_{\text{total}}$ Γ_{273}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<2.3 \times 10^{-4}$	90	[1] LI 18D	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes B($\Upsilon(4S) \rightarrow B^0\overline{B}^0$) = 48.6 ± 0.6% and B($\Lambda_c^+ \rightarrow pK^-\pi^+$) = 6.23 ± 0.33%.

$\Gamma(\psi(4230)^0 K^0,\ \psi^0 \rightarrow J/\psi\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{274}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<17 \times 10^{-6}$	90	[1] GARG 19	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^0 and B^+ at the $\Upsilon(4S)$.

$\Gamma(K^+\pi^-)/\Gamma_{\text{total}}$ Γ_{275}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
19.6 ± 0.5 OUR FIT				
19.6 ± 0.5 OUR AVERAGE				
$20.00 \pm 0.34 \pm 0.60$		[1] DUH 13	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
$19.1 \pm 0.6 \pm 0.6$		[1] AUBERT 07B	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
$18.0\,^{+2.3}_{-2.1}\,^{+1.2}_{-0.9}$		[1] BORNHEIM 03	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$19.9 \pm 0.4 \pm 0.8$		[1] LIN 07A	BELL	Repl. by DUH 13
$18.5 \pm 1.0 \pm 0.7$		[1] CHAO 04	BELL	Repl. by LIN 07A
$17.9 \pm 0.9 \pm 0.7$		[1] AUBERT 02Q	BABR	Repl. by AUBERT 07B
$22.5 \pm 1.9 \pm 1.8$		[1] CASEY 02	BELL	Repl. by CHAO 04
$19.3\,^{+3.4}_{-3.2}\,^{+1.5}_{-0.6}$		[1] ABE 01H	BELL	Repl. by CASEY 02
$16.7 \pm 1.6 \pm 1.3$		[1] AUBERT 01E	BABR	Repl. by AUBERT 02Q
< 66	90	[2] ABE 00C	SLD	$e^+e^- \rightarrow Z$
$17.2\,^{+2.5}_{-2.4} \pm 1.2$		[1] CRONIN-HEN..00	CLE2	Repl. by BORNHEIM 03
$15\,^{+5.}_{-4} \pm 1.4$		GODANG 98	CLE2	Repl. by CRONIN-HENNESSY 00
$24\,^{+17}_{-11} \pm 2$		[3] ADAM 96D	DLPH	$e^+e^- \rightarrow Z$
< 17	90	ASNER 96	CLE2	Sup. by ADAM 96D
< 30	90	[4] BUSKULIC 96V	ALEP	$e^+e^- \rightarrow Z$
< 90	90	[5] ABREU 95N	DLPH	Sup. by ADAM 96D
< 81	90	[6] AKERS 94L	OPAL	$e^+e^- \rightarrow Z$
< 26	90	[7] BATTLE 93	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
<180	90	ALBRECHT 91B	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
< 90	90	[8] AVERY 89B	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
<320	90	AVERY 87	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ABE 00C assumes B($Z \rightarrow b\overline{b}$)=(21.7 ± 0.1)% and the B fractions $f_{B^0}=f_{B^+}=(39.7^{+1.8}_{-2.2})$% and $f_{B_s}=(10.5^{+1.8}_{-2.2})$%.

[3] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$. Contributions from B^0 and B_s decays cannot be separated. Limits are given for the weighted average of the decay rates for the two neutral B mesons.

[4] BUSKULIC 96V assumes PDG 96 production fractions for B^0, B^+, B_s, b baryons.

[5] Assumes a B^0, B^- production fraction of 0.39 and a B_s production fraction of 0.12. Contributions from B^0 and B^0_s decays cannot be separated. Limits are given for the weighted average of the decay rates for the two neutral B mesons.

[6] Assumes B($Z \rightarrow b\overline{b}$) = 0.217 and B^0_d (B^0_s) fraction 39.5% (12%).

[7] BATTLE 93 assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

[8] Assumes the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$.

$\Gamma(K^+\pi^-)/\Gamma(K^0\pi^0)$ $\Gamma_{275}/\Gamma_{276}$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$2.16 \pm 0.16 \pm 0.16$	LIN 07A	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$1.20^{+0.50}_{-0.58}{}^{+0.22}_{-0.32}$	[1] ABE 01H	BELL	Repl. by LIN 07A

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\left[\Gamma(K^+\pi^-)+\Gamma(\pi^+\pi^-)\right]/\Gamma_{\text{total}}$ $(\Gamma_{275}+\Gamma_{410})/\Gamma$

VALUE (units 10^{-6})	*EVTS*	*DOCUMENT ID*	*TECN*	*COMMENT*
19 ± 6 OUR AVERAGE				
$28^{+15}_{-10} \pm 20$		[1] ADAM 96D	DLPH	$e^+e^- \to Z$
$18^{+6}_{-5}{}^{+3}_{-4}$	17.2	ASNER 96	CLE2	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE (units 10^{-6})	*EVTS*	*DOCUMENT ID*	*TECN*	*COMMENT*
$24^{+8}_{-7} \pm 2$		[2] BATTLE 93	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$. Contributions from B^0 and B_s decays cannot be separated. Limits are given for the weighted average of the decay rates for the two neutral B mesons.

[2] BATTLE 93 assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(K^0\pi^0)/\Gamma_{\text{total}}$ Γ_{276}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
9.9 ± 0.5 OUR AVERAGE				
$9.68 \pm 0.46 \pm 0.50$		[1] DUH 13	BELL	$e^+e^- \to \Upsilon(4S)$
$10.1 \pm 0.6 \pm 0.4$		[1] LEES 13D	BABR	$e^+e^- \to \Upsilon(4S)$
$12.8^{+4.0}_{-3.3}{}^{+1.7}_{-1.4}$		[1] BORNHEIM 03	CLE2	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$8.7 \pm 0.5 \pm 0.6$		[1] FUJIKAWA 10A	BELL	Repl. by DUH 13
$10.3 \pm 0.7 \pm 0.6$		[1] AUBERT 08E	BABR	Repl. by LEES 13D
$9.2 \pm 0.7 \pm 0.6$		[1] LIN 07A	BELL	Repl. by FUJIKAWA 10A
$11.4 \pm 0.9 \pm 0.6$		[1] AUBERT 05Y	BABR	Repl. by AUBERT 08E
$11.4 \pm 1.7 \pm 0.8$		[1] AUBERT 04M	BABR	Repl. by AUBERT 05Y
$11.7 \pm 2.3{}^{+1.2}_{-1.3}$		[1] CHAO 04	BELL	Repl. by LIN 07A
$8.0^{+3.3}_{-3.1} \pm 1.6$		[1] CASEY 02	BELL	Repl. by CHAO 04
$16.0^{+7.2}_{-5.9}{}^{+2.5}_{-2.7}$		[1] ABE 01H	BELL	Repl. by CASEY 02
$8.2^{+3.1}_{-2.7} \pm 1.2$		[1] AUBERT 01E	BABR	Repl. by AUBERT 04M
$14.6^{+5.9}_{-5.1}{}^{+2.4}_{-3.3}$		[1] CRONIN-HEN...00	CLE2	Repl. by BORNHEIM 03
<41	90	GODANG 98	CLE2	Repl. by CRONIN-HENNESSY 00
<40	90	ASNER 96	CLE2	Rep. by GODANG 98

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta' K^0)/\Gamma_{\text{total}}$ Γ_{277}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
66 ± 4 OUR AVERAGE	Error includes scale factor of 1.4.			
$68.5 \pm 2.2 \pm 3.1$	[1] AUBERT	09AV	BABR	$e^+ e^- \to \Upsilon(4S)$
$58.9^{+3.6}_{-3.5} \pm 4.3$	[1] SCHUEMANN	06	BELL	$e^+ e^- \to \Upsilon(4S)$
$89^{+18}_{-16} \pm 9$	[1] RICHICHI	00	CLE2	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$66.6 \pm 2.6 \pm 2.8$	[1] AUBERT	07AE	BABR	Repl. by AUBERT 09AV
$67.4 \pm 3.3 \pm 3.2$	[1] AUBERT	05M	BABR	AUBERT 07AE
$60.6 \pm 5.6 \pm 4.6$	[1] AUBERT	03W	BABR	Repl. by AUBERT 05M
$55^{+19}_{-16} \pm 8$	[1] ABE	01M	BELL	Repl. by SCHUEMANN 06
$42^{+13}_{-11} \pm 4$	[1] AUBERT	01G	BABR	Repl. by AUBERT 03W
$47^{+27}_{-20} \pm 9$	BEHRENS	98	CLE2	Repl. by RICHICHI 00

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta' K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{278}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.8±0.6 OUR AVERAGE					
$2.6 \pm 0.7 \pm 0.2$		[1] SATO	14	BELL	$e^+ e^- \to \Upsilon(4S)$
$3.1^{+0.9}_{-0.8} \pm 0.3$		[1] DEL-AMO-SA..	10A	BABR	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$3.8 \pm 1.1 \pm 0.5$		[1] AUBERT	07E	BABR	Repl. by DEL-AMO-SANCHEZ 10A
< 2.6	90	[1] SCHUEMANN	07	BELL	$e^+ e^- \to \Upsilon(4S)$
< 7.6	90	[1] AUBERT,B	04D	BABR	Repl. by AUBERT 07E
<24	90	[1] RICHICHI	00	CLE2	$e^+ e^- \to \Upsilon(4S)$
<39	90	BEHRENS	98	CLE2	Repl. by RICHICHI 00

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta' K_0^*(1430)^0)/\Gamma_{\text{total}}$ Γ_{279}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$6.3 \pm 1.3 \pm 0.9$	[1] DEL-AMO-SA..	10A	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta' K_2^*(1430)^0)/\Gamma_{\text{total}}$ Γ_{280}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$13.7^{+3.0}_{-2.9} \pm 1.2$	[1] DEL-AMO-SA..	10A	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta K^0)/\Gamma_{\text{total}}$ Γ_{281}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$1.23^{+0.27}_{-0.24}$ OUR AVERAGE					
$1.27^{+0.33}_{-0.29}\pm0.08$		[1] HOI	12	BELL	$e^+e^- \to \Upsilon(4S)$
$1.15^{+0.43}_{-0.38}\pm0.09$		[1] AUBERT	09AV	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$ 1.9	90	[1] CHANG	07B	BELL	Repl. by HOI 12
$<$ 2.9	90	[1] AUBERT,B	06V	BABR	$e^+e^- \to \Upsilon(4S)$
$<$ 2.5	90	[1] AUBERT,B	05K	BABR	$e^+e^- \to \Upsilon(4S)$
$<$ 2.0	90	[1] CHANG	05A	BELL	Repl. by CHANG 07B
$<$ 5.2	90	[1] AUBERT	04H	BABR	Repl. by AUBERT,B 05K
$<$ 9.3	90	[1] RICHICHI	00	CLE2	$e^+e^- \to \Upsilon(4S)$
$<$33	90	BEHRENS	98	CLE2	Repl. by RICHICHI 00

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{282}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
15.9±1.0 OUR AVERAGE					
15.2±1.2±1.0		[1] WANG	07B	BELL	$e^+e^- \to \Upsilon(4S)$
16.5±1.1±0.8		[1] AUBERT,B	06H	BABR	$e^+e^- \to \Upsilon(4S)$
$13.8^{+5.5}_{-4.6}\pm1.6$		[1] RICHICHI	00	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
18.6±2.3±1.2		[1] AUBERT,B	04D	BABR	Repl. by AUBERT,B 06H
$<$30	90	BEHRENS	98	CLE2	Repl. by RICHICHI 00

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta K_0^*(1430)^0)/\Gamma_{\text{total}}$ Γ_{283}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
11.0±1.6±1.5	[1] AUBERT,B	06H	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta K_2^*(1430)^0)/\Gamma_{\text{total}}$ Γ_{284}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
9.6±1.8±1.1	[1] AUBERT,B	06H	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\omega K^0)/\Gamma_{\text{total}}$ Γ_{285}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
4.8±0.4 OUR AVERAGE					
4.5±0.4±0.3		[1] CHOBANOVA	14	BELL	$e^+e^- \to \Upsilon(4S)$
5.4±0.8±0.3		[1] AUBERT	07AE	BABR	$e^+e^- \to \Upsilon(4S)$
$10.0^{+5.4}_{-4.2}\pm1.4$		[1] JESSOP	00	CLE2	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$6.2 \pm 1.0 \pm 0.4$		[1] AUBERT,B	06E	BABR	Repl. by AUBERT 07AE
$4.4^{+0.8}_{-0.7} \pm 0.4$		[1] JEN	06	BELL	Repl. by CHOBANOVA 14
$5.9^{+1.6}_{-1.3} \pm 0.5$		[1] AUBERT	04H	BABR	Repl. by AUBERT,B 06E
$4.0^{+1.9}_{-1.6} \pm 0.5$		[1] WANG	04A	BELL	Repl. by JEN 06
<13	90	[1] AUBERT	01G	BABR	Repl. by AUBERT 04H
<57	90	[1] BERGFELD	98	CLE2	Repl. by JESSOP 00

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(a_0(980)^0 K^0,\ a_0^0 \to \eta\pi^0)/\Gamma_{\text{total}}$ Γ_{286}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<7.8	90	[1] AUBERT,BE	04	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of charged and neutral B mesons at $\Upsilon(4S)$.

$\Gamma(b_1^0 K^0,\ b_1^0 \to \omega\pi^0)/\Gamma_{\text{total}}$ Γ_{287}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<7.8	90	[1] AUBERT	08AG	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(a_0(980)^\pm K^\mp,\ a_0^\pm \to \eta\pi^\pm)/\Gamma_{\text{total}}$ Γ_{288}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.9	90	[1] AUBERT	07Y	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<2.1	90	[1] AUBERT,BE	04	BABR	Repl. by AUBERT 07Y

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(b_1^- K^+,\ b_1^- \to \omega\pi^-)/\Gamma_{\text{total}}$ Γ_{289}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
7.4±1.0±1.0	[1] AUBERT	07BI	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(b_1^0 K^{*0},\ b_1^0 \to \omega\pi^0)/\Gamma_{\text{total}}$ Γ_{290}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<8.0 \times 10^{-6}}$	90	[1] AUBERT	09AF	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(b_1^- K^{*+},\ b_1^- \to \omega\pi^-)/\Gamma_{\text{total}}$ Γ_{291}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<5.0 \times 10^{-6}}$	90	[1] AUBERT	09AF	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(a_0(1450)^\pm K^\mp,\ a_0^\pm \to \eta\pi^\pm)/\Gamma_{\text{total}}$ Γ_{292}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<3.1	90	[1] AUBERT	07Y	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^0_S X^0\text{(Familon)})/\Gamma_{\text{total}}$ Γ_{293}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<53	90	[1] AMMAR	01B	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] AMMAR 01B searched for the two-body decay of the B meson to a massless neutral feebly-interacting particle X^0 such as the familon, the Nambu-Goldstone boson associated with a spontaneously broken global family symmetry.

$\Gamma(\omega K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{294}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.0±0.5 OUR AVERAGE					
2.2±0.6±0.2		[1] AUBERT	09H	BABR	$e^+e^- \to \Upsilon(4S)$
1.8±0.7±0.3		[1] GOLDENZWE...	08	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
< 4.2	90	[1] AUBERT,B	06T	BABR	Repl. by AUBERT 09H
< 6.0	90	[1] AUBERT	05O	BABR	Repl. by AUBERT,B 06T
<23	90	[1] BERGFELD	98	CLE2	

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\omega (K\pi)^{*0}_0)/\Gamma_{\text{total}}$ Γ_{295}/Γ

$(K\pi)^{*0}_0$ is the total S-wave composed of $K^*_0(1430)$ and nonresonant that are described using LASS shape.

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
18.4±1.8±1.7	[1] AUBERT	09H	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\omega K^*_0(1430)^0)/\Gamma_{\text{total}}$ Γ_{296}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
16.0±1.6±3.0	[1] AUBERT	09H	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\omega K^*_2(1430)^0)/\Gamma_{\text{total}}$ Γ_{297}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
10.1±2.0±1.1	[1] AUBERT	09H	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\omega K^+\pi^-\text{ nonresonant})/\Gamma_{\text{total}}$ Γ_{298}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
5.1±0.7±0.7	[1,2] GOLDENZWE...	08	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] For the $K\pi$ mass range 0.755–1.250 GeV/c^2, excluding $K^*(892)$.

$\Gamma(K^+\pi^-\pi^0)/\Gamma_{\text{total}}$ Γ_{299}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
37.8±3.2 OUR AVERAGE					
38.5±1.0±3.9		[1,2] LEES	11	BABR	$e^+e^- \to \Upsilon(4S)$
$36.6^{+4.2}_{-4.3}\pm3.0$		[1] CHANG	04	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$35.7^{+2.6}_{-1.5}\pm2.2$		[1] AUBERT	08AQ BABR	Repl. by LEES 11
<40	90	[1] ECKHART	02 CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses Dalitz plot analysis of $B^0 \to K^+\pi^-\pi^0$ decays.

$\Gamma(K^+\rho^-)/\Gamma_{\text{total}}$ Γ_{300}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
7.0±0.9 OUR AVERAGE				
$6.6\pm0.5\pm0.8$		[1,2] LEES	11 BABR	$e^+e^- \to \Upsilon(4S)$
$15.1^{+3.4}_{-3.3}{}^{+2.4}_{-2.6}$		[1] CHANG	04 BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$8.0^{+0.8}_{-1.3}\pm0.6$		[1] AUBERT	08AQ BABR	Repl. by LEES 11
$7.3^{+1.3}_{-1.2}\pm1.3$		[1] AUBERT	03T BABR	Repl. by AUBERT 08AQ
<32	90	[1] JESSOP	00 CLE2	$e^+e^- \to \Upsilon(4S)$
<35	90	ASNER	96 CLE2	Repl. by JESSOP 00

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses Dalitz plot analysis of $B^0 \to K^+\pi^-\pi^0$ decays.

$\Gamma(K^+\rho(1450)^-)/\Gamma_{\text{total}}$ Γ_{301}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
2.4±1.0±0.6		[1,2] LEES	11 BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

<2.1	90	[1] AUBERT	08AQ BABR	Repl. by LEES 11

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses Dalitz plot analysis of $B^0 \to K^+\pi^-\pi^0$ decays.

$\Gamma(K^+\rho(1700)^-)/\Gamma_{\text{total}}$ Γ_{302}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
0.6±0.6±0.4		[1,2] LEES	11 BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

<1.1	90	[1] AUBERT	08AQ BABR	Repl. by LEES 11

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses Dalitz plot analysis of $B^0 \to K^+\pi^-\pi^0$ decays.

$\Gamma((K^+\pi^-\pi^0)\text{ nonresonant})/\Gamma_{\text{total}}$ Γ_{303}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
2.8±0.5±0.4		[1,2] LEES	11 BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$4.4\pm0.9\pm0.5$		[1] AUBERT	08AQ BABR	Repl. by LEES 11
<9.4	90	[1] CHANG	04 BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses Dalitz plot analysis of $B^0 \to K^+\pi^-\pi^0$ decays. The quoted value is only for the flat part of the non-resonant component.

$\Gamma\big((K\pi)^{*+}_0\pi^-,\ (K\pi)^{*+}_0 \to K^+\pi^0\big)/\Gamma_{\text{total}}$ $\qquad\Gamma_{304}/\Gamma$

$(K\pi)^{*+}_0$ is the total S-wave composed of $K^*_0(1430)$ and nonresonant that are described using LASS shape.

VALUE (units 10^{-6})	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{34.2 \pm 2.4 \pm 4.1}$	[1,2] LEES 11	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$9.4^{+1.1}_{-1.3}{}^{+2.3}_{-2.1}$	[1] AUBERT 08AQ	BABR	Repl. by LEES 11

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses Dalitz plot analysis of $B^0 \to K^+\pi^-\pi^0$ decays.

$\Gamma\big((K\pi)^{*0}_0\pi^0,\ (K\pi)^{*0}_0 \to K^+\pi^-\big)/\Gamma_{\text{total}}$ $\qquad\Gamma_{305}/\Gamma$

$(K\pi)^{*0}_0$ is the total S-wave composed of $K^*_0(1430)$ and nonresonant that are described using LASS shape.

VALUE (units 10^{-6})	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{8.6 \pm 1.1 \pm 1.3}$	[1,2] LEES 11	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$8.7^{+1.1}_{-0.9}{}^{+2.8}_{-2.6}$	[1] AUBERT 08AQ	BABR	Repl. by LEES 11

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses Dalitz plot analysis of $B^0 \to K^+\pi^-\pi^0$ decays.

$\Gamma\big(K^*_2(1430)^0\pi^0\big)/\Gamma_{\text{total}}$ $\qquad\Gamma_{306}/\Gamma$

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{<4.0}$	90	[1] AUBERT 08AQ	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(K^*(1680)^0\pi^0\big)/\Gamma_{\text{total}}$ $\qquad\Gamma_{307}/\Gamma$

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{<7.5}$	90	[1] AUBERT 08AQ	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(K^{*0}_x\pi^0\big)/\Gamma_{\text{total}}$ $\qquad\Gamma_{308}/\Gamma$

K^{*0}_x stands for the possible candidates of $K^*(1410)$, $K^*_0(1430)$ and $K^*_2(1430)$.

VALUE (units 10^{-6})	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{6.1^{+1.6}_{-1.5}{}^{+0.5}_{-0.6}}$	[1] CHANG 04	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(K^0\pi^+\pi^-\big)/\Gamma_{\text{total}}$ $\qquad\Gamma_{309}/\Gamma$

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
49.7± 1.8 OUR FIT				
49.6± 2.0 OUR AVERAGE				
$50.2 \pm 1.5 \pm 1.8$		[1] AUBERT 09AU	BABR	$e^+e^- \to \Upsilon(4S)$
$47.5 \pm 2.4 \pm 3.7$		[2] GARMASH 07	BELL	$e^+e^- \to \Upsilon(4S)$
$50\ ^{+10}_{-9} \pm 7$		[1] ECKHART 02	CLE2	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

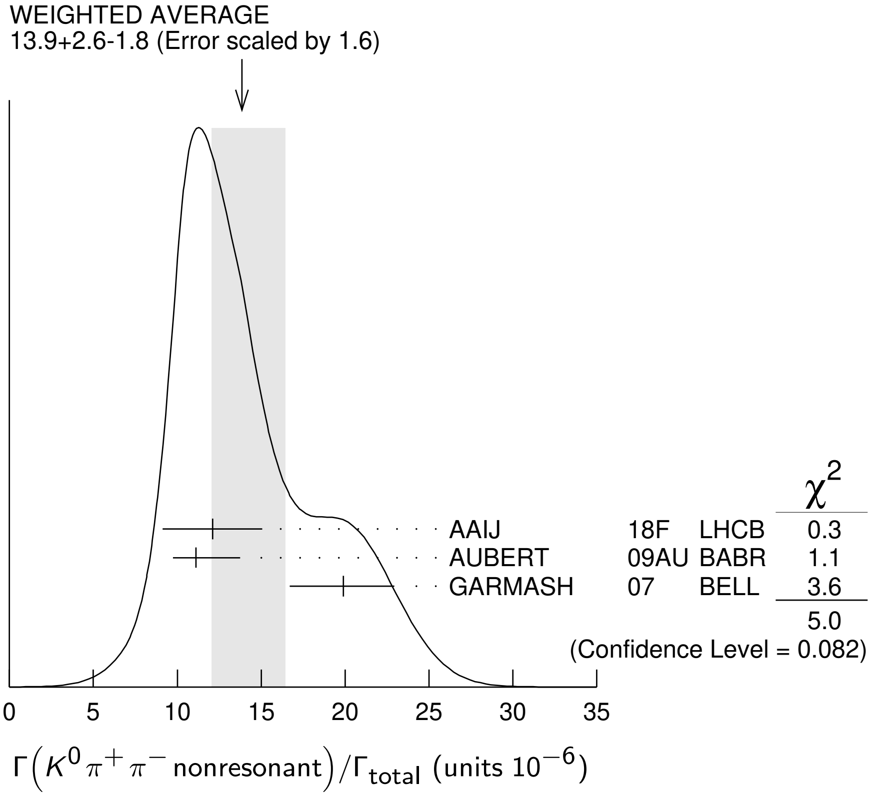
$43.0\pm\ 2.3\pm2.3$		[1] AUBERT	06I	BABR	Repl. by AUBERT 09AU
$43.7\pm\ 3.8\pm3.4$		[1] AUBERT,B	04O	BABR	Repl. by AUBERT 06I
$45.4\pm\ 5.2\pm5.9$		[1] GARMASH	04	BELL	Repl. by GARMASH 07
<440	90	ALBRECHT	91E	ARG	$e^+e^- \rightarrow\ \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses Dalitz plot analysis of the $B^0 \rightarrow\ K^0\pi^+\pi^-$ final state decays.

$\Gamma(K^0\pi^+\pi^-$ nonresonant$)/\Gamma_{\text{total}}$ Γ_{310}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*	*TECN*	*COMMENT*
$13.9^{+2.6}_{-1.8}$ OUR AVERAGE	Error includes scale factor of 1.6. See the ideogram below.		
$12.1\pm0.6\pm2.9$	[1] AAIJ 18F	LHCB	pp at 7, 8 TeV
$11.1^{+2.5}_{-1.0}\pm0.9$	[2] AUBERT 09AU	BABR	$e^+e^- \rightarrow\ \Upsilon(4S)$
$19.9\pm2.5^{+1.7}_{-2.0}$	[3] GARMASH 07	BELL	$e^+e^- \rightarrow\ \Upsilon(4S)$



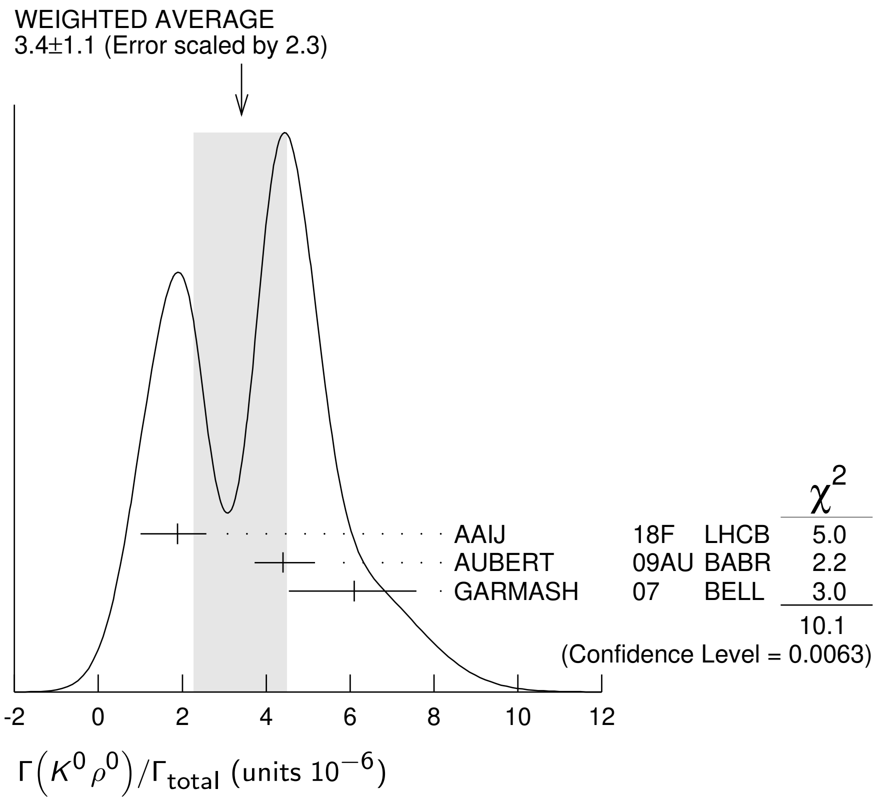
[1] Uses Dalitz plot analysis of the $B^0 \rightarrow\ K^0_S\pi^+\pi^-$ final state decays. For the branching fraction of the reference mode, the PDG 18 average $B(B^0 \rightarrow\ K^0_S\pi^+\pi^-) = (4.96 \pm 0.20) \times 10^{-5}$ is used.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] Uses Dalitz plot analysis of the $B^0 \rightarrow\ K^0\pi^+\pi^-$ final state decays.

$\Gamma(K^0\rho^0)/\Gamma_{\text{total}}$ Γ_{311}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
3.4 ±1.1 OUR AVERAGE		Error includes scale factor of 2.3. See the ideogram below.		
$1.89^{+0.55}_{-0.79}\pm0.40$		[1] AAIJ 18F	LHCB	pp at 7, 8 TeV
$4.4\ ^{+0.7}_{-0.6}\ \pm0.3$		[2] AUBERT 09AU	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
$6.1\ \pm1.0\ ^{+1.1}_{-1.2}$		[3] GARMASH 07	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$4.9\ \pm0.8\ \pm0.9$		[2] AUBERT 07F	BABR	Repl. by AUBERT 09AU
$<\ 39$	90	ASNER 96	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
<320	90	ALBRECHT 91B	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
<500	90	[4] AVERY 89B	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$



[1] Uses Dalitz plot analysis of the $B^0 \rightarrow K^0_S\pi^+\pi^-$ final state decays. For the branching fraction of the reference mode, the PDG 18 average $\text{B}(B^0 \rightarrow K^0_S\pi^+\pi^-) = (4.96 \pm 0.20) \times 10^{-5}$ is used.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] Uses Dalitz plot analysis of the $B^0 \rightarrow K^0\pi^+\pi^-$ final state decays.

[4] AVERY 89B reports $< 5.8 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^*(892)^+\pi^-)/\Gamma_{\text{total}}$ Γ_{312}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
7.5 ± 0.4 OUR AVERAGE				
$7.02\pm0.30\pm0.45$		[1] AAIJ 18F	LHCB	pp at 7, 8 TeV
$8.0\pm1.1\pm0.8$		[2,3] LEES 11	BABR	$e^+e^-\to\Upsilon(4S)$
$8.3^{+0.9}_{-0.8}\pm0.8$		[3,4] AUBERT 09AU	BABR	$e^+e^-\to\Upsilon(4S)$
$8.4\pm1.1^{+1.0}_{-0.9}$		[4] GARMASH 07	BELL	$e^+e^-\to\Upsilon(4S)$
$16^{+6}_{-5}\pm2$		[3] ECKHART 02	CLE2	$e^+e^-\to\Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$12.6^{+2.7}_{-1.6}\pm0.9$		[2,3] AUBERT 08AQ	BABR	Repl. by LEES 11
$11.0\pm1.5\pm0.71$		[3] AUBERT 06I	BABR	Repl. by AUBERT 09AU
$12.9\pm2.4\pm1.4$		[3] AUBERT,B 04O	BABR	Repl. by AUBERT 06I
$14.8^{+4.6}_{-4.4}{}^{+2.8}_{-1.3}$		[3] CHANG 04	BELL	Repl. by GARMASH 07
$<\ 72$	90	ASNER 96	CLE2	$e^+e^-\to\Upsilon(4S)$
<620	90	ALBRECHT 91B	ARG	$e^+e^-\to\Upsilon(4S)$
<380	90	[5] AVERY 89B	CLEO	$e^+e^-\to\Upsilon(4S)$
<560	90	[6] AVERY 87	CLEO	$e^+e^-\to\Upsilon(4S)$

[1] Uses Dalitz plot analysis of the $B^0\to K^0_S\pi^+\pi^-$ final state decays. For the branching fraction of the reference mode, the PDG 18 average $B(B^0\to K^0_S\pi^+\pi^-)=(4.96\pm0.20)\times10^{-5}$ is used.

[2] Uses Dalitz plot analysis of $B^0\to K^+\pi^-\pi^0$ decays.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[4] Uses Dalitz plot analysis of the $B^0\to K^0\pi^+\pi^-$ final state decays.

[5] AVERY 89B reports $<4.4\times10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

[6] AVERY 87 reports $<7\times10^{-4}$ assuming the $\Upsilon(4S)$ decays 40% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^*_0(1430)^+\pi^-)/\Gamma_{\text{total}}$ Γ_{313}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*	*TECN*	*COMMENT*
33 ± 7 OUR AVERAGE Error includes scale factor of 2.0.			
$29.9^{+2.3}_{-1.7}\pm3.6$	[1,2] AUBERT 09AU	BABR	$e^+e^-\to\Upsilon(4S)$
$49.7\pm3.8^{+6.8}_{-8.2}$	[2] GARMASH 07	BELL	$e^+e^-\to\Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses Dalitz plot analysis of the $B^0\to K^0\pi^+\pi^-$ final state decays.

$\Gamma(K^{*+}_x\pi^-)/\Gamma_{\text{total}}$ Γ_{314}/Γ

K^{*+}_x stands for the possible candidates of $K^*(1410)$, $K^*_0(1430)$ and $K^*_2(1430)$.

VALUE (units 10^{-6})	*DOCUMENT ID*	*TECN*	*COMMENT*
$5.1\pm1.5^{+0.6}_{-0.7}$	[1] CHANG 04	BELL	$e^+e^-\to\Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^*(1410)^+\pi^-,\ K^{*+}\to K^0\pi^+)/\Gamma_{\text{total}}$ Γ_{315}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<3.8	90	[1] GARMASH	07	BELL	$e^+e^-\to\Upsilon(4S)$

[1] Uses Dalitz plot analysis of the $B^0\to K^0\pi^+\pi^-$ final state decays.

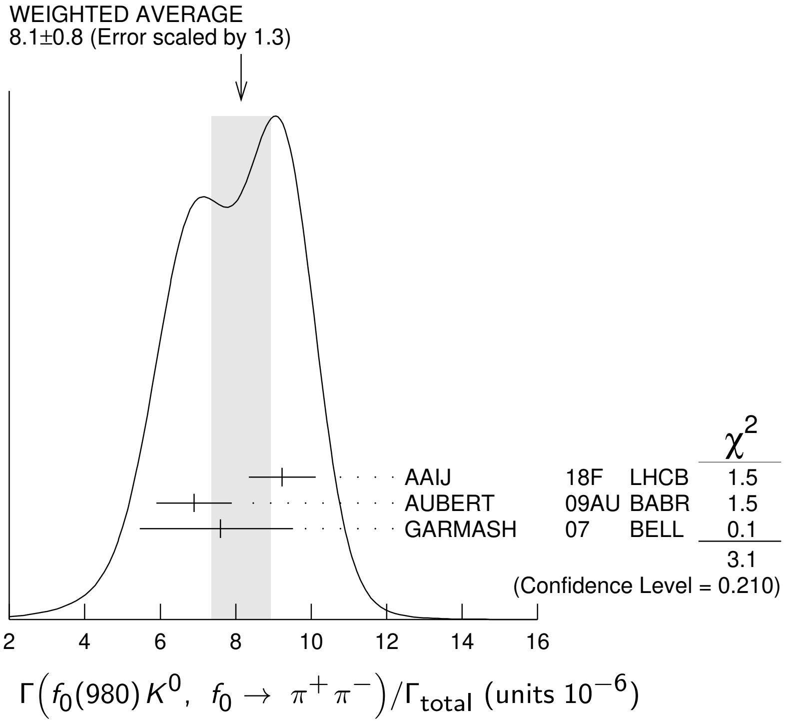
$\Gamma((K\pi)_0^{*+}\pi^-,\ (K\pi)_0^{*+}\to K^0\pi^+)/\Gamma_{\text{total}}$ Γ_{316}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
16.2±0.69±1.15	[1] AAIJ	18F	LHCB	pp at 7, 8 TeV

[1] Uses Dalitz plot analysis of the $B^0\to K_S^0\pi^+\pi^-$ final state decays. $(K\pi)_0^{*+}$ is the S-wave component of $K^0\pi^+$. For the branching fraction of the reference mode, the PDG 18 average B($B^0\to K_S^0\pi^+\pi^-$) = $(4.96\pm0.20)\times10^{-5}$ is used.

$\Gamma(f_0(980)K^0,\ f_0\to\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{317}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
8.1 ±0.8 OUR AVERAGE		Error includes scale factor of 1.3. See the ideogram below.			
9.23±0.40±0.79		[1] AAIJ	18F	LHCB	pp at 7, 8 TeV
6.9 ±0.8 ±0.6		[2] AUBERT	09AU	BABR	$e^+e^-\to\Upsilon(4S)$
7.6 ±1.7 $^{+0.9}_{-1.3}$		[3] GARMASH	07	BELL	$e^+e^-\to\Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
5.5 ±0.7 ±0.6		[2] AUBERT	06I	BABR	Repl. by AUBERT 09AU
<360	90	[4] AVERY	89B	CLEO	$e^+e^-\to\Upsilon(4S)$



[1] Uses Dalitz plot analysis of the $B^0\to K_S^0\pi^+\pi^-$ final state decays. For the branching fraction of the reference mode, the PDG 18 average B($B^0\to K_S^0\pi^+\pi^-$) = $(4.96\pm0.20)\times10^{-5}$ is used.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] Uses Dalitz plot analysis of the $B^0 \to K^0\pi^+\pi^-$ final state decays.

[4] AVERY 89B reports $< 4.2 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^0 f_0(500))/\Gamma_{\text{total}}$ Γ_{318}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.16^{+0.20}_{-0.04}\pm0.15$	[1] AAIJ	18F	LHCB	pp at 7, 8 TeV

[1] Uses Dalitz plot analysis of the $B^0 \to K^0_S\pi^+\pi^-$ final state decays. For the branching fraction of the reference mode, the PDG 18 average $B(B^0 \to K^0_S\pi^+\pi^-) = (4.96 \pm 0.20) \times 10^{-5}$ is used.

$\Gamma(K^0 f_0(1500))/\Gamma_{\text{total}}$ Γ_{319}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.29±0.27±0.70	[1] AAIJ	18F	LHCB	pp at 7, 8 TeV

[1] Uses Dalitz plot analysis of the $B^0 \to K^0_S\pi^+\pi^-$ final state decays. For the branching fraction of the reference mode, the PDG 18 average $B(B^0 \to K^0_S\pi^+\pi^-) = (4.96 \pm 0.20) \times 10^{-5}$ is used.

$\Gamma(f_2(1270) K^0)/\Gamma_{\text{total}}$ Γ_{320}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$2.7^{+1.0}_{-0.8}\pm0.9$		[1] AUBERT	09AU	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<2.5	90	[2] GARMASH	07	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] GARMASH 07 reports $B(B^0 \to f_2(1270) K^0)\times B(f_2(1270) \to \pi^+\pi^-) < 1.4 \times 10^{-6}$ using Dalitz plot analysis. We compute $B(B^0 \to f_2(1270) K^0)$ using the PDG value $B(f_2(1270) \to \pi\pi) = 84.3 \times 10^{-2}$ and 2/3 for the $\pi^+\pi^-$ fraction.

$\Gamma(f_x(1300) K0, f_x \to \pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{321}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$1.81^{+0.55}_{-0.45}\pm0.48$	[1] AUBERT	09AU	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^*(892)^0\pi^0)/\Gamma_{\text{total}}$ Γ_{322}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
3.3±0.5±0.4		[1,2] LEES	11	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3.6±0.7±0.4		[1,2] AUBERT	08AQ	BABR	Repl. by LEES 11
< 3.5	90	[2] CHANG	04	BELL	$e^+e^- \to \Upsilon(4S)$
< 3.6	90	JESSOP	00	CLE2	$e^+e^- \to \Upsilon(4S)$
<28	90	ASNER	96	CLE2	Repl. by JESSOP 00

[1] Uses Dalitz plot analysis of $B^0 \to K^+\pi^-\pi^0$ decays.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K_2^*(1430)^+\pi^-)/\Gamma_{\text{total}}$ Γ_{323}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{3.65^{+0.15}_{-0.12}\pm0.31}$		[1] AAIJ	18F	LHCB	pp at 7, 8 TeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<$ 16.2	90	[2,3] AUBERT	08AQ	BABR	$e^+e^- \to \Upsilon(4S)$
$<$ 6	90	[4] GARMASH	07	BELL	$e^+e^- \to \Upsilon(4S)$
$<$ 18	90	[3] GARMASH	04	BELL	Repl. by GARMASH 07
$<$2600	90	ALBRECHT	91B	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Uses Dalitz plot analysis of the $B^0 \to K^0_S\pi^+\pi^-$ final state decays. We compute $B(B^0 \to K_2^*(1430)^+\pi^-)$ using the PDG 18 value $B(K_2^*(1430) \to K\pi) = 49.9\times10^{-2}$ and 2/3 for the $K^0\pi^+$ fraction. For the branching fraction of the reference mode, the PDG 18 average $B(B^0 \to K^0_S\pi^+\pi^-) = (4.96 \pm 0.20) \times 10^{-5}$ is used.

[2] Uses Dalitz plot analysis of $B^0 \to K^+\pi^-\pi^0$ decays.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[4] GARMASH 07 reports $B(B^0 \to K_2^*(1430)^+\pi^-)\times B(K_2^{*+} \to K^0\pi^+) < 2.1 \times 10^{-6}$ using Dalitz plot analysis. We compute $B(B^0 \to K_2^*(1430)^+\pi^-)$ using the PDG value $B(K_2^*(1430) \to K\pi) = 49.9 \times 10^{-2}$ and 2/3 for the $K^0\pi^+$ fraction.

$\Gamma(K^*(1680)^+\pi^-)/\Gamma_{\text{total}}$ Γ_{324}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
14.1±0.58±0.84		[1] AAIJ	18F	LHCB	pp at 7, 8 TeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<$25	90	[2,3] AUBERT	08AQ	BABR	$e^+e^- \to \Upsilon(4S)$
$<$10	90	[4] GARMASH	07	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Uses Dalitz plot analysis of the $B^0 \to K^0_S\pi^+\pi^-$ final state decays. We compute $B(B^0 \to K_2^*(1430)^+\pi^-)$ using the PDG 18 value $B(K_2^*(1430) \to K\pi) = (49.9 \pm 1.2)\times10^{-2}$ and 2/3 for the $K^0\pi^+$ fraction. For the branching fraction of the reference mode, the PDG 18 average $B(B^0 \to K^0_S\pi^+\pi^-) = (4.96 \pm 0.20) \times 10^{-5}$ is used.

[2] Uses Dalitz plot analysis of $B^0 \to K^+\pi^-\pi^0$ decays.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[4] GARMASH 07 reports $B(B^0 \to K^*(1680)^+\pi^-)\times B(K^{*+} \to K^0\pi^+) < 2.6 \times 10^{-6}$ using Dalitz plot analysis. We compute $B(B^0 \to K^*(1680)^+\pi^-)$ using the PDG value $B(K^*(1680) \to K\pi)=38.7 \times 10^{-2}$ and 2/3 for the $K^0\pi^+$ fraction.

$\Gamma(K^+\pi^-\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{325}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<2.3\times10^{-4}}$	90	[1] ADAM	96D	DLPH	$e^+e^- \to Z$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<2.1\times10^{-4}$	90	[2] ABREU	95N	DLPH	Sup. by ADAM 96D

[1] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$. Contributions from B^0 and B_s decays cannot be separated. Limits are given for the weighted average of the decay rates for the two neutral B mesons.

[2] Assumes a B^0, B^- production fraction of 0.39 and a B_s production fraction of 0.12. Contributions from B^0 and B^0_s decays cannot be separated. Limits are given for the weighted average of the decay rates for the two neutral B mesons.

$\Gamma(\rho^0 K^+ \pi^-)/\Gamma_{\text{total}}$ Γ_{326}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$2.8 \pm 0.5 \pm 0.5$	[1,2] KYEONG	09	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Required $0.75 < m_{K^+ \pi^-} < 1.20$ GeV/c^2.

$\Gamma(f_0(980) K^+ \pi^-,\ f_0 \to \pi\pi)/\Gamma_{\text{total}}$ Γ_{327}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$1.4 \pm 0.4^{+0.3}_{-0.4}$	[1,2] KYEONG	09	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Required $0.75 < m_{K^+ K^-} < 1.2$ GeV/c^2.

$\Gamma(K^+ \pi^- \pi^+ \pi^- \text{nonresonant})/\Gamma_{\text{total}}$ Γ_{328}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<2.1 \times 10^{-6}$	90	[1,2] KYEONG	09	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Required $0.55 < m_{\pi^+ \pi^-} < 1.42$ and $0.75 < m_{K^+ \pi^-} < 1.20$ GeV/c^2.

$\Gamma(K^*(892)^0 \pi^+ \pi^-)/\Gamma_{\text{total}}$ Γ_{329}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$54.5 \pm 2.9 \pm 4.3$		[1] AUBERT	07AS	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$4.5^{+1.1}_{-1.0}{}^{+0.9}_{-1.6}$		[1,2] KYEONG	09	BELL	$e^+ e^- \to \Upsilon(4S)$
<1400	90	ALBRECHT	91E	ARG	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Required $0.55 < m_{\pi^+ \pi^-} < 1.42$ GeV/c^2.

$\Gamma(K^*(892)^0 \rho^0)/\Gamma_{\text{total}}$ Γ_{330}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
3.9 ± 1.3 OUR AVERAGE	Error includes scale factor of 1.9.				
$5.1 \pm 0.6^{+0.6}_{-0.8}$		[1] LEES	12K	BABR	$e^+ e^- \to \Upsilon(4S)$
$2.1^{+0.8}_{-0.7}{}^{+0.9}_{-0.5}$		[1] KYEONG	09	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$5.6 \pm 0.9 \pm 1.3$		[1] AUBERT,B	06G	BABR	Repl. by LEES 12K
<34	90	[2] GODANG	02	CLE2	$e^+ e^- \to \Upsilon(4S)$
<286	90	[3] ABE	00C	SLD	$e^+ e^- \to Z$
<460	90	ALBRECHT	91B	ARG	$e^+ e^- \to \Upsilon(4S)$
<580	90	[4] AVERY	89B	CLEO	$e^+ e^- \to \Upsilon(4S)$
<960	90	[5] AVERY	87	CLEO	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Assumes a helicity 00 configuration. For a helicity 11 configuration, the limit decreases to 2.4×10^{-5}.

[3] ABE 00C assumes B($Z \to b\overline{b}$)=(21.7 ± 0.1)% and the B fractions $f_{B^0}=f_{B^+}=(39.7^{+1.8}_{-2.2})$% and $f_{B_s}=(10.5^{+1.8}_{-2.2})$%.

[4] AVERY 89B reports $< 6.7 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

[5] AVERY 87 reports $< 1.2\times10^{-3}$ assuming the $\Upsilon(4S)$ decays 40% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^*(892)^0 f_0(980),\ f_0 \to \pi\pi)/\Gamma_{\text{total}}$ Γ_{331}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$3.9^{+2.1}_{-1.8}$ OUR AVERAGE		Error includes scale factor of 3.9.			
$5.7\pm0.6\pm0.4$		[1] LEES	12K	BABR	$e^+e^- \to \Upsilon(4S)$
$1.4^{+0.6}_{-0.5}{}^{+0.6}_{-0.4}$		[1,2] KYEONG	09	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$ 4.3	90	[1] AUBERT,B	06G	BABR	$e^+e^- \to \Upsilon(4S)$
$<$170	90	[3] AVERY	89B	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] The upper limit is 2.2×10^{-6} at 90% CL.

[3] AVERY 89B reports $< 2.0 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K_1(1270)^+\pi^-)/\Gamma_{\text{total}}$ Γ_{332}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<3.0 \times 10^{-5}$	90	[1] AUBERT	10D	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K_1(1400)^+\pi^-)/\Gamma_{\text{total}}$ Γ_{333}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<2.7 \times 10^{-5}$	90	[1] AUBERT	10D	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.1 \times 10^{-3}$	90	ALBRECHT	91B	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(a_1(1260)^- K^+)/\Gamma_{\text{total}}$ Γ_{334}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$16.3\pm2.9\pm2.3$		[1,2] AUBERT	08F	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$230	90	[3] ADAM	96D	DLPH	$e^+e^- \to Z$
$<$390	90	[4] ABREU	95N	DLPH	Sup. by ADAM 96D

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Assumes $a_1^\pm$ decays only to 3π and B($a_1^\pm \to \pi^\pm\pi^\mp\pi^\pm$) = 0.5.

[3] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$. Contributions from B^0 and B_s decays cannot be separated. Limits are given for the weighted average of the decay rates for the two neutral B mesons.

[4] Assumes a B^0, B^- production fraction of 0.39 and a B_s production fraction of 0.12. Contributions from B^0 and B_s^0 decays cannot be separated. Limits are given for the weighted average of the decay rates for the two neutral B mesons.

$\Gamma(K^*(892)^+\rho^-)/\Gamma_{\text{total}}$ Γ_{335}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
10.3±2.3±1.3		[1] LEES 12K	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<12.0	90	[1] AUBERT,B 06G	BABR	Repl. by LEES 12K

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K_0^*(1430)^+\rho^-)/\Gamma_{\text{total}}$ Γ_{336}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*	*TECN*	*COMMENT*
28±10±6	[1] LEES 12K	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K_1(1400)^0\rho^0)/\Gamma_{\text{total}}$ Γ_{337}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<3.0 × 10^{-3}	90	ALBRECHT 91B	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

$\Gamma(K_0^*(1430)^0\rho^0)/\Gamma_{\text{total}}$ Γ_{338}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*	*TECN*	*COMMENT*
27±4±4	[1] LEES 12K	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K_0^*(1430)^0 f_0(980),\ f_0 \rightarrow \pi\pi)/\Gamma_{\text{total}}$ Γ_{339}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*	*TECN*	*COMMENT*
2.7±0.7±0.6	[1] LEES 12K	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K_2^*(1430)^0 f_0(980),\ f_0 \rightarrow \pi\pi)/\Gamma_{\text{total}}$ Γ_{340}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*	*TECN*	*COMMENT*
8.6±1.7±1.0	[1] LEES 12K	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^+K^-)/\Gamma_{\text{total}}$ Γ_{341}/Γ

VALUE (units 10^{-8})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
7.80± 1.27± 0.84		[1] AAIJ 17G	LHCB	pp at 7 and 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
10 ± 8 ± 4		[2,3] DUH 13	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
12 $^{+8}_{-7}$ ± 1		[4] AAIJ 12AR	LHCB	Repl. by AAIJ 17G
23 ±10 ±10		[5] AALTONEN 12L	CDF	$p\overline{p}$ at 1.96 TeV
< 70	90	[6] AALTONEN 09C	CDF	Repl. by AALTONEN 12L
< 50	90	[3] AUBERT 07B	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
< 41	90	[3] LIN 07	BELL	Repl. by DUH 13
< 180	90	[7] ABULENCIA,A 06D	CDF	Repl. by AALTONEN 09C
< 37	90	ABE 05G	BELL	Repl. by LIN 07
< 70	90	CHAO 04	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
< 80	90	[3] BORNHEIM 03	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

$<$ 60	90	[3] AUBERT 02Q	BABR	$e^+e^- \to \Upsilon(4S)$
$<$ 90	90	[3] CASEY 02	BELL	$e^+e^- \to \Upsilon(4S)$
$<$ 270	90	[3] ABE 01H	BELL	$e^+e^- \to \Upsilon(4S)$
$<$ 250	90	[3] AUBERT 01E	BABR	$e^+e^- \to \Upsilon(4S)$
$<$ 6600	90	[8] ABE 00C	SLD	$e^+e^- \to Z$
$<$ 190	90	[3] CRONIN-HEN...00	CLE2	$e^+e^- \to \Upsilon(4S)$
$<$ 430	90	GODANG 98	CLE2	Repl. by CRONIN-HENNESSY 00
$<$ 4600		[9] ADAM 96D	DLPH	$e^+e^- \to Z$
$<$ 400	90	ASNER 96	CLE2	Repl. by GODANG 98
$<$ 1800	90	[10] BUSKULIC 96V	ALEP	$e^+e^- \to Z$
$<$12000	90	[11] ABREU 95N	DLPH	Sup. by ADAM 96D
$<$ 700	90	[3] BATTLE 93	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Supercedes results of AAIJ 12AR.

[2] DUH 13 reports also for the same data $B(B^0 \to K^+K^-) < 0.20 \times 10^{-6}$ at 90% CL.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[4] AAIJ 12AR reports $[\Gamma(B^0 \to K^+K^-)/\Gamma_{\text{total}}]$ / $[B(B_s^0 \to K^+K^-)]$ / $[\Gamma(\overline{b} \to B_s^0)/\Gamma(\overline{b} \to B^0)] = 0.018^{+0.008}_{-0.007} \pm 0.009$ which we multiply by our best values $B(B_s^0 \to K^+K^-) = (2.66 \pm 0.22) \times 10^{-5}$, $\Gamma(\overline{b} \to B_s^0)/\Gamma(\overline{b} \to B^0) = 0.246 \pm 0.023$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

[5] Reported a central value of $(0.23 \pm 0.10 \pm 0.10) \times 10^{-6}$ using $B(B^0 \to K^+\pi^-) = (19.4 \pm 0.6) \times 10^{-6}$.

[6] Obtains this result from $B(K^+K^-)/B(K^+\pi^-) = 0.020 \pm 0.008 \pm 0.006$, assuming $B(B^0 \to K^+\pi^-) = (19.4 \pm 0.6) \times 10^{-6}$.

[7] ABULENCIA,A 06D obtains this from $\Gamma(K^+K^-)/\Gamma(K^+\pi^-) < 0.10$ at 90% CL, assuming $B(B^0 \to K^+\pi^-) = (18.9 \pm 0.7) \times 10^{-6}$.

[8] ABE 00C assumes $B(Z \to b\overline{b})=(21.7 \pm 0.1)\%$ and the B fractions $f_{B^0}=f_{B^+}=(39.7^{+1.8}_{-2.2})\%$ and $f_{B_s}=(10.5^{+1.8}_{-2.2})\%$.

[9] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$. Contributions from B^0 and B_s decays cannot be separated. Limits are given for the weighted average of the decay rates for the two neutral B mesons.

[10] BUSKULIC 96V assumes PDG 96 production fractions for B^0, B^+, B_s, b baryons.

[11] Assumes a B^0, B^- production fraction of 0.39 and a B_s production fraction of 0.12. Contributions from B^0 and B_s^0 decays cannot be separated. Limits are given for the weighted average of the decay rates for the two neutral B mesons.

$\Gamma(K^0\overline{K}^0)/\Gamma_{\text{total}}$ Γ_{342}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
1.21±0.16 OUR AVERAGE				
$1.26 \pm 0.19 \pm 0.05$		[1] DUH 13	BELL	$e^+e^- \to \Upsilon(4S)$
$1.08 \pm 0.28 \pm 0.11$		[1] AUBERT,BE 06C	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.87^{+0.25}_{-0.20} \pm 0.09$		[1] LIN 07	BELL	Repl. by DUH 13
$0.8 \pm 0.3 \pm 0.9$		[1] ABE 05G	BELL	Repl. by LIN 07
$1.19^{+0.40}_{-0.35} \pm 0.13$		[1] AUBERT,BE 05E	BABR	Repl. by AUBERT,BE 06C
$<$ 1.8	90	[1] AUBERT 04M	BABR	$e^+e^- \to \Upsilon(4S)$

< 1.5	90	[1] CHAO	04	BELL	Repl. by ABE 05G
< 3.3	90	[1] BORNHEIM	03	CLE2	$e^+e^- \to \Upsilon(4S)$
< 4.1	90	[1] CASEY	02	BELL	$e^+e^- \to \Upsilon(4S)$
<17	90	GODANG	98	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^0\overline{K}^0)/\Gamma(K^0\phi)$ $\Gamma_{342}/\Gamma_{351}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.17±0.08±0.02	[1] AAIJ	20F	LHCB	pp at 7, 8, 13 TeV

[1] Observed signal with a significance of 3.5 σ.

$\Gamma(K^0K^-\pi^+)/\Gamma_{\text{total}}$ Γ_{343}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
6.7±0.5 OUR FIT					
7.0±0.6 OUR AVERAGE					
7.2±0.7±0.3		[1] LAI	19	BELL	$e^+e^- \to \Upsilon(4S)$
6.4±1.0±0.6		[1] DEL-AMO-SA..	10E	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<18	90	[1] GARMASH	04	BELL	$e^+e^- \to \Upsilon(4S)$
<21	90	[1] ECKHART	02	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^*(892)^{\pm}K^{\mp})/\Gamma_{\text{total}}$ Γ_{344}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.4 × 10^−6	90	AAIJ	14BM	LHCB	pp at 7 TeV

$\Gamma(K^0K^-\pi^+)/\Gamma(K^0\pi^+\pi^-)$ $\Gamma_{343}/\Gamma_{309}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.134±0.011 OUR FIT				
0.123±0.009±0.015	AAIJ	17BP	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.128±0.017±0.009	AAIJ	13BP	LHCB	Repl. by AAIJ 17BP

$\left[\Gamma(\overline{K}^{*0}K^0)+\Gamma(K^{*0}\overline{K}^0)\right]/\Gamma_{\text{total}}$ Γ_{345}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.96	90	[1] AAIJ	16	LHCB	pp at 7 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<1.9	90	[2] AUBERT,BE	06N	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes B($B^0 \to K^0\pi^+\pi^-$) = (4.96 ± 0.20) × 10^{-5}.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^+K^-\pi^0)/\Gamma_{\text{total}}$ Γ_{346}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.17±0.60±0.24		[1] GAUR	13	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<19	90	[1] ECKHART	02	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^0_S K^0_S \pi^0)/\Gamma_{\text{total}}$ Γ_{347}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<0.9 \times 10^{-6}$	90	[1] AUBERT	09AD	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^0_S K^0_S \eta)/\Gamma_{\text{total}}$ Γ_{348}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<1.0 \times 10^{-6}$	90	[1] AUBERT	09AD	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^0_S K^0_S \eta')/\Gamma_{\text{total}}$ Γ_{349}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<2.0 \times 10^{-6}$	90	[1] AUBERT	09AD	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^0 K^+ K^-)/\Gamma_{\text{total}}$ Γ_{350}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
26.8±1.1 OUR FIT					
26.6±1.2 OUR AVERAGE					
26.5±0.9±0.8		[1,2] LEES	12O	BABR	$e^+ e^- \to \Upsilon(4S)$
28.3±3.3±4.0		[1] GARMASH	04	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
23.8±2.0±1.6		[1] AUBERT,B	04V	BABR	Repl. by LEES 12O
<1300	90	ALBRECHT	91E	ARG	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] All intermediate charmonium and charm resonances are removed, except of χ_{c0}.

$\Gamma(K^0 K^+ K^-)/\Gamma(K^0 \pi^+ \pi^-)$ $\Gamma_{350}/\Gamma_{309}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.539±0.025 OUR FIT				
0.549±0.018±0.033	AAIJ	17BP	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.385±0.031±0.023	AAIJ	13BP	LHCB	Repl. by AAIJ 17BP

$\Gamma(K^0 \phi)/\Gamma_{\text{total}}$ Γ_{351}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
7.3±0.7 OUR AVERAGE					
$7.1 \pm 0.6 ^{+0.4}_{-0.3}$		[1] LEES	12O	BABR	$e^+ e^- \to \Upsilon(4S)$
$9.0 ^{+2.2}_{-1.8} \pm 0.7$		[1] CHEN	03B	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$8.4 ^{+1.5}_{-1.3} \pm 0.5$		[1] AUBERT	04A	BABR	Repl. by LEES 12O
$8.1 ^{+3.1}_{-2.5} \pm 0.8$		[1] AUBERT	01D	BABR	$e^+ e^- \to \Upsilon(4S)$
$<$ 12.3	90	[1] BRIERE	01	CLE2	$e^+ e^- \to \Upsilon(4S)$
$<$ 31	90	[1] BERGFELD	98	CLE2	

< 88	90	ASNER	96	CLE2	$e^+e^- \to \Upsilon(4S)$
< 720	90	ALBRECHT	91B	ARG	$e^+e^- \to \Upsilon(4S)$
< 420	90	[2] AVERY	89B	CLEO	$e^+e^- \to \Upsilon(4S)$
<1000	90	[3] AVERY	87	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] AVERY 89B reports $< 4.9 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

[3] AVERY 87 reports $< 1.3 \times 10^{-3}$ assuming the $\Upsilon(4S)$ decays 40% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(f_0(980)K^0,\ f_0 \to K^+K^-)/\Gamma_{\text{total}}$ Γ_{352}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{7.0^{+2.6}_{-1.8}\pm2.4}$	[1] LEES	12O	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(f_0(1500)K^0)/\Gamma_{\text{total}}$ Γ_{353}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{13.3^{+5.8}_{-4.4}\pm3.2}$	[1] LEES	12O	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(f_2'(1525)^0K^0)/\Gamma_{\text{total}}$ Γ_{354}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.29^{+0.27}_{-0.18}\pm0.36}$	[1] LEES	12O	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(f_0(1710)K^0,\ f_0 \to K^+K^-)/\Gamma_{\text{total}}$ Γ_{355}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
4.4±0.7±0.5	[1] LEES	12O	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^0K^+K^-\ \text{nonresonant})/\Gamma_{\text{total}}$ Γ_{356}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
33±5±9	[1] LEES	12O	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^0_SK^0_SK^0_S)/\Gamma_{\text{total}}$ Γ_{357}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
6.0 ±0.5 OUR AVERAGE Error includes scale factor of 1.1.				
6.19±0.48±0.19	[1] LEES	12I	BABR	$e^+e^- \to \Upsilon(4S)$
$4.2\ ^{+1.6}_{-1.3}\ \pm0.8$	[1] GARMASH	04	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$6.9\ ^{+0.9}_{-0.8}\ \pm0.6$	[1] AUBERT,B	05	BABR	Repl. by LEES 12I

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(f_0(980)K^0,\ f_0 \to K^0_S K^0_S)/\Gamma_{\text{total}}$ Γ_{358}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{2.7^{+1.3}_{-1.2}\pm1.3}$	[1,2] LEES	12I	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[2] Uses Dalitz plot analysis of the $B^0 \to K^0_S K^0_S K^0_S$ decay.

$\Gamma(f_0(1710)K^0,\ f_0 \to K^0_S K^0_S)/\Gamma_{\text{total}}$ Γ_{359}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.50^{+0.46}_{-0.24}\pm0.11}$	[1,2] LEES	12I	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[2] Uses Dalitz plot analysis of the $B^0 \to K^0_S K^0_S K^0_S$ decay.

$\Gamma(f_2(2010)K^0,\ f_2 \to K^0_S K^0_S)/\Gamma_{\text{total}}$ Γ_{360}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.54^{+0.21}_{-0.20}\pm0.52}$	[1,2] LEES	12I	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[2] Uses Dalitz plot analysis of the $B^0 \to K^0_S K^0_S K^0_S$ decay.

$\Gamma(K^0_S K^0_S K^0_S \text{ nonresonant})/\Gamma_{\text{total}}$ Γ_{361}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{13.3^{+2.2}_{-2.3}\pm2.2}$	[1,2] LEES	12I	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[2] Uses Dalitz plot analysis of the $B^0 \to K^0_S K^0_S K^0_S$ decay.

$\Gamma(K^0_S K^0_S K^0_L)/\Gamma_{\text{total}}$ Γ_{362}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<16	90	[1] AUBERT,B	06R	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^*(892)^0 K^+ K^-)/\Gamma_{\text{total}}$ Γ_{363}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
27.5±1.3±2.2		[1] AUBERT	07AS	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<610	90	ALBRECHT	91E	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^*(892)^0 \phi)/\Gamma_{\text{total}}$ Γ_{364}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
10.0±0.5 OUR FIT					
10.0±0.5 OUR AVERAGE					
10.4±0.5±0.6		[1] PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
9.7±0.5±0.5		[1] AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$
$11.5^{+4.5+1.8}_{-3.7-1.7}$		[1] BRIERE	01	CLE2	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$9.2 \pm 0.7 \pm 0.6$		[1] AUBERT	07D	BABR	Repl. by AUBERT 08BG
$9.2 \pm 0.9 \pm 0.5$		[1] AUBERT,B	04W	BABR	Repl. by AUBERT 07D
$11.2 \pm 1.3 \pm 0.8$		[1] AUBERT	03V	BABR	Repl. by AUBERT,B 04W
$10.0^{+1.6}_{-1.5}{}^{+0.7}_{-0.8}$		[1] CHEN	03B	BELL	Repl. by PRIM 13
$8.7^{+2.5}_{-2.1} \pm 1.1$		[1] AUBERT	01D	BABR	Repl. by AUBERT 03V
<384	90	[2] ABE	00C	SLD	$e^+e^- \to Z$
< 21	90	[1] BERGFELD	98	CLE2	
< 43	90	ASNER	96	CLE2	$e^+e^- \to \Upsilon(4S)$
<320	90	ALBRECHT	91B	ARG	$e^+e^- \to \Upsilon(4S)$
<380	90	[3] AVERY	89B	CLEO	$e^+e^- \to \Upsilon(4S)$
<380	90	[4] AVERY	87	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ABE 00C assumes B($Z \to b\overline{b}$)=(21.7 ± 0.1)% and the B fractions $f_{B^0}=f_{B^+}=(39.7^{+1.8}_{-2.2})$% and $f_{B_s}=(10.5^{+1.8}_{-2.2})$%.

[3] AVERY 89B reports $< 4.4 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

[4] AVERY 87 reports $< 4.7 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 40% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^+K^-\pi^+\pi^-$ nonresonant$)/\Gamma_{\text{total}}$ Γ_{365}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<71.7	90	[1,2] CHIANG	10	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Measured in the range $0.7 < m_{K\pi} < 1.7$ and corrected using PS assumption for the full $K\pi$ mass range.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^*(892)^0K^-\pi^+)/\Gamma_{\text{total}}$ Γ_{366}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
4.5 ±1.3 OUR AVERAGE				
$2.11^{+5.63}_{-5.26}{}^{+4.85}_{-4.75}$	[1,2] CHIANG	10	BELL	$e^+e^- \to \Upsilon(4S)$
$4.6 \pm 1.1 \pm 0.8$	[2] AUBERT	07AS	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Measured in the range $0.7 < m_{K\pi} < 1.7$ and corrected using PS assumption for the full $K\pi$ mass range. The quoted result is equivalent to the upper limit of $< 13.9 \times 10^{-6}$ at 90% CL.

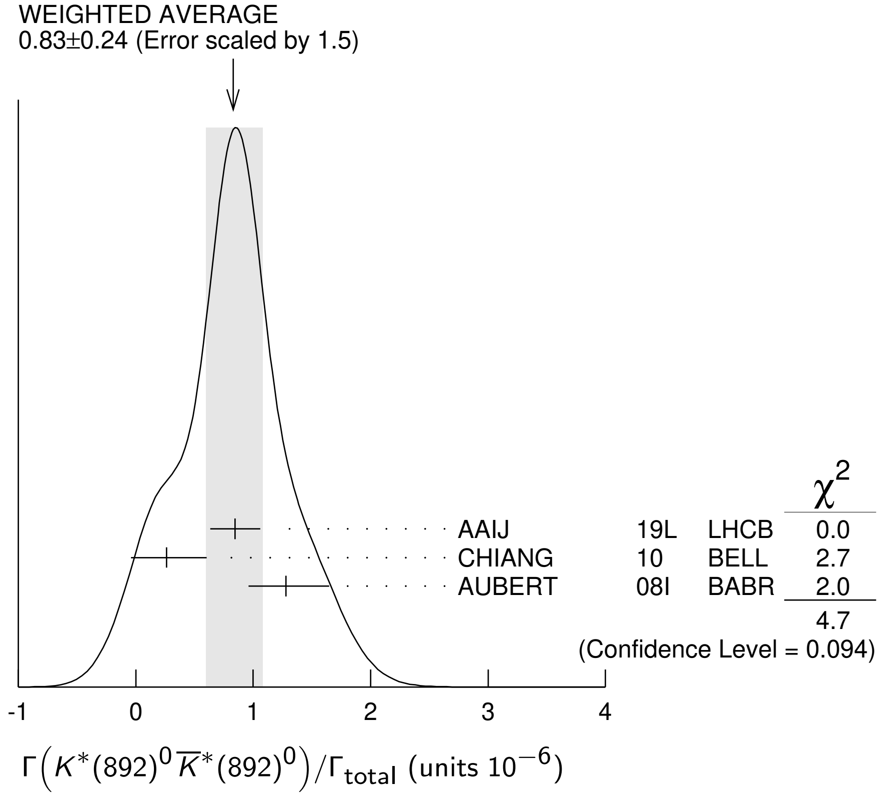
[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^*(892)^0\overline{K}^*(892)^0)/\Gamma_{\text{total}}$ Γ_{367}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.83±0.24 OUR AVERAGE Error includes scale factor of 1.5. See the ideogram below.					
$0.85 \pm 0.07 \pm 0.20$		[1] AAIJ	19L	LHCB	pp at 7 and 8 TeV
$0.26^{+0.33}_{-0.29}{}^{+0.10}_{-0.08}$		[2,3] CHIANG	10	BELL	$e^+e^- \to \Upsilon(4S)$
$1.28^{+0.35}_{-0.30} \pm 0.11$		[3] AUBERT	08I	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<$ 22	90	[4] GODANG	02	CLE2	$e^+ e^- \to \Upsilon(4S)$
$<$469	90	[5] ABE	00C	SLD	$e^+ e^- \to Z$



[1] AAIJ 19L reports $[\Gamma(B^0 \to K^*(892)^0 \overline{K}^*(892)^0)/\Gamma_{\text{total}}]$ / $[B(B_s^0 \to \overline{K}^*(892)^0 K^*(892)^0)] = 0.0758 \pm 0.0057 \pm 0.0030$ which we multiply by our best value $B(B_s^0 \to \overline{K}^*(892)^0 K^*(892)^0) = (1.11 \pm 0.27) \times 10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Measured in the range $0.7 < m_{K\pi} < 1.7$ and corrected using PS assumption for the full $K\pi$ mass range. The quoted result is equivalent to the upper limit of $< 0.8 \times 10^{-6}$ at 90% CL.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[4] Assumes a helicity 00 configuration. For a helicity 11 configuration, the limit decreases to 1.9×10^{-5}.

[5] ABE 00C assumes $B(Z \to b\overline{b}) = (21.7 \pm 0.1)\%$ and the B fractions $f_{B^0} = f_{B^+} = (39.7^{+1.8}_{-2.2})\%$ and $f_{B_s} = (10.5^{+1.8}_{-2.2})\%$.

$\Gamma(K^+ K^+ \pi^- \pi^-$ nonresonant$)/\Gamma_{\text{total}}$ Γ_{368}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<6.0	90	[1] CHIANG	10	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^*(892)^0 K^+ \pi^-)/\Gamma_{\text{total}}$ Γ_{369}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<2.2	90	[1] AUBERT 07AS	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<7.6	90	[1] CHIANG 10	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^*(892)^0 K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{370}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
< 0.2	90	[1] CHIANG 10	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
< 0.41	90	[1] AUBERT 08I	BABR	$e^+e^- \to \Upsilon(4S)$
<37	90	[2] GODANG 02	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Assumes a helicity 00 configuration. For a helicity 11 configuration, the limit decreases to 2.9×10^{-5}.

$\Gamma(K^*(892)^+ K^*(892)^-)/\Gamma_{\text{total}}$ Γ_{371}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
< 2.0	90	[1] AUBERT 08AP	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<141	90	[2] GODANG 02	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Assumes a helicity 00 configuration. For a helicity 11 configuration, the limit decreases to 8.9×10^{-5}.

$\Gamma(K_1(1400)^0 \phi)/\Gamma_{\text{total}}$ Γ_{372}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<5.0 \times 10^{-3}$	90	ALBRECHT 91B	ARG	$e^+e^- \to \Upsilon(4S)$

$\Gamma(\phi(K\pi)^{*0}_0)/\Gamma_{\text{total}}$ Γ_{373}/Γ

This decay refers to the coherent sum of resonant and nonresonant $J^P = 0^+$ $K\pi$ components with $1.13 < m_{K\pi} < 1.53$ GeV/c^2.

VALUE (units 10^{-6})	*DOCUMENT ID*	*TECN*	*COMMENT*
4.3±0.4 OUR AVERAGE			
4.3±0.4±0.4	[1] PRIM 13	BELL	$e^+e^- \to \Upsilon(4S)$
4.3±0.6±0.4	[1] AUBERT 08BG	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
5.0±0.8±0.3	[1] AUBERT 07D	BABR	Repl. by AUBERT 08BG

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\phi(K\pi)^{*0}_0\ (1.60<m_{K\pi}<2.15))/\Gamma_{\text{total}}$ Γ_{374}/Γ

This decay refers to the coherent sum of resonant and nonresonant $J^P = 0^+$ $K\pi$ components with $1.60 < m_{K\pi} < 2.15$ GeV/c^2.

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<1.7	90	[1] AUBERT 07AO	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K_0^*(1430)^0 K^- \pi^+)/\Gamma_{\text{total}}$ Γ_{375}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<31.8	90	[1,2] CHIANG	10	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Measured in the range 0.7< $m_{K\pi}$ < 1.7 and corrected using PS assumption for the full $K\pi$ mass range.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K_0^*(1430)^0 \overline{K}^*(892)^0)/\Gamma_{\text{total}}$ Γ_{376}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<3.3	90	[1,2] CHIANG	10	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Measured in the range 0.7< $m_{K\pi}$ < 1.7 and corrected using PS assumption for the full $K\pi$ mass range.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K_0^*(1430)^0 \overline{K}_0^*(1430)^0)/\Gamma_{\text{total}}$ Γ_{377}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<8.4	90	[1,2] CHIANG	10	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Measured in the range 0.7< $m_{K\pi}$ < 1.7 and corrected using PS assumption for the full $K\pi$ mass range.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K_0^*(1430)^0 \phi)/\Gamma_{\text{total}}$ Γ_{378}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
3.9±0.5±0.6	[1] AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4.6±0.7±0.6	[1] AUBERT	07D	BABR	Repl. by AUBERT 08BG
seen	[2] AUBERT,B	04W	BABR	Repl. by AUBERT 07D

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Observed 181 ± 17 events with statistical significance greater than 10 σ.

$\Gamma(K_0^*(1430)^0 K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{379}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.7	90	[1] CHIANG	10	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K_0^*(1430)^0 K_0^*(1430)^0)/\Gamma_{\text{total}}$ Γ_{380}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<4.7	90	[1] CHIANG	10	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^*(1680)^0 \phi)/\Gamma_{\text{total}}$ Γ_{381}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<3.5	90	[1] AUBERT	07AO	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^*(1780)^0\phi)/\Gamma_{\text{total}}$ Γ_{382}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<2.7	90	[1] AUBERT	07AO	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^*(2045)^0\phi)/\Gamma_{\text{total}}$ Γ_{383}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<15.3	90	[1] AUBERT	07AO	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K_2^*(1430)^0\rho^0)/\Gamma_{\text{total}}$ Γ_{384}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<1.1\times10^3$	90	ALBRECHT	91B	ARG	$e^+e^- \to \Upsilon(4S)$

$\Gamma(K_2^*(1430)^0\phi)/\Gamma_{\text{total}}$ Γ_{385}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
6.8±0.9 OUR AVERAGE		Error includes scale factor of 1.2.			
$5.5^{+0.9}_{-0.7}\pm1.0$		[1] PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
$7.5\pm0.9\pm0.5$		[1] AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$7.8\pm1.1\pm0.6$		[1] AUBERT	07D	BABR	Repl. by AUBERT 08BG
seen		[2] AUBERT,B	04W	BABR	Repl. by AUBERT 07D
<1400	90	ALBRECHT	91B	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] The angular distribution of $B \to \phi K^*(1430)$ provides evidence with statistical significance of 3.2 σ.

$\Gamma(K^0\phi\phi)/\Gamma_{\text{total}}$ Γ_{386}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
3.7 ±0.7 OUR AVERAGE	Error includes scale factor of 1.3.			
$3.02^{+0.75}_{-0.66}\pm0.20$	[1] MOHANTY	21	BELL	$e^+e^- \to \Upsilon(4S)$
$4.5\pm0.8\pm0.3$	[1] LEES	11A	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$4.1^{+1.7}_{-1.4}\pm0.4$	[1] AUBERT,BE	06H	BABR	Repl. by LEES 11A

[1] Assumes equal production of B^0 and B^+ at the $\Upsilon(4S)$ and the $\phi\phi$ invariant mass below 2.85 GeV/c^2.

$\Gamma(\eta'\eta' K^0)/\Gamma_{\text{total}}$ Γ_{387}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<31	90	[1] AUBERT,B	06P	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta K^0\gamma)/\Gamma_{\text{total}}$ Γ_{388}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*	*TECN*	*COMMENT*
7.6±1.8 OUR AVERAGE			
$7.1^{+2.1}_{-2.0}\pm0.4$	[1,2] AUBERT 09	BABR	$e^+e^- \to \Upsilon(4S)$
$8.7^{+3.1}_{-2.7}{}^{+1.9}_{-1.6}$	[2,3] NISHIDA 05	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$11.3^{+2.8}_{-1.6}\pm0.6$	[1,2] AUBERT,B 06M	BABR	Repl. by AUBERT 09

[1] $m_{\eta K} < 3.25$ GeV/c^2.
[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[3] $m_{\eta K} < 2.4$ GeV/c^2

$\Gamma(\eta' K^0\gamma)/\Gamma_{\text{total}}$ Γ_{389}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<6.4	90	[1,2] WEDD 10	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<6.6	90	[1,3] AUBERT,B 06M	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[2] $m_{\eta' K} < 3.4$ GeV/c^2.
[3] $m_{\eta' K} < 3.25$ GeV/c^2.

$\Gamma(K^0\phi\gamma)/\Gamma_{\text{total}}$ Γ_{390}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
2.74±0.60±0.32		[1] SAHOO 11A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<2.7	90	[1] AUBERT 07Q	BABR	$e^+e^- \to \Upsilon(4S)$
<8.3	90	[1] DRUTSKOY 04	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at $\Upsilon(4S)$.

$\Gamma(K^+\pi^-\gamma)/\Gamma_{\text{total}}$ Γ_{391}/Γ

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{(4.6^{+1.3}_{-1.2}{}^{+0.5}_{-0.7}) \times 10^{-6}}$	[1,2] NISHIDA 02	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[2] 1.25 GeV/c^2 $< M_{K\pi} <$ 1.6 GeV/c^2

$\Gamma(K^*(892)^0\gamma)/\Gamma_{\text{total}}$ Γ_{392}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
41.8± 2.5 OUR AVERAGE		Error includes scale factor of 2.1.		
39.6± 0.7±1.4		[1] HORIGUCHI 17	BELL	$e^+e^- \to \Upsilon(4S)$
44.7± 1.0±1.6		[2] AUBERT 09AO	BABR	$e^+e^- \to \Upsilon(4S)$
$45.5^{+\ 7.2}_{-\ 6.8}\pm3.4$		[3] COAN 00	CLE2	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

39.2± 2.0±2.4		[4] AUBERT,BE	04A	BABR	Repl. by AUBERT 09AO
40.1± 2.1±1.7		[5] NAKAO	04	BELL	Repl. by HORIGUCHI 17
< 110	90	ACOSTA	02G	CDF	$p\overline{p}$ at 1.8 TeV
42.3± 4.0±2.2		[5] AUBERT	02C	BABR	Repl. by AUBERT,BE 04A
< 210	90	[6] ADAM	96D	DLPH	$e^+e^- \rightarrow Z$
40 ±17 ±8		[7] AMMAR	93	CLE2	Repl. by COAN 00
< 420	90	ALBRECHT	89G	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
< 240	90	[8] AVERY	89B	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
<2100	90	AVERY	87	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Uses B($\Upsilon(4S) \rightarrow B^+B^-$) = (51.4 ± 0.6)% and B($\Upsilon(4S) \rightarrow B^0\overline{B}^0$) = (48.6 ± 0.6)%.

[2] Uses B($\Upsilon(4S) \rightarrow B^+B^-$) = (51.6 ± 0.6)% and B($\Upsilon(4S) \rightarrow B^0\overline{B}^0$) = (48.4 ± 0.6)%.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$. No evidence for a nonresonant $K\pi\gamma$ contamination was seen; the central value assumes no contamination.

[4] Uses the production ratio of charged and neutral B from $\Upsilon(4S)$ decays $\mathrm{R}^{+/0} = 1.006 \pm 0.048$.

[5] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[6] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$.

[7] AMMAR 93 observed 6.6 ± 2.8 events above background.

[8] AVERY 89B reports $< 2.8 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^*(1410)\gamma)/\Gamma_{\text{total}}$ Γ_{393}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.3 × 10^{-4}	90	[1] NISHIDA	02	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^+\pi^-\gamma$ nonresonant$)/\Gamma_{\text{total}}$ Γ_{394}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.6 × 10^{-6}	90	[1,2] NISHIDA	02	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] 1.25 GeV/c^2 $< M_{K\pi} <$ 1.6 GeV/c^2

$\Gamma(K^*(892)^0 X(214),\ X \rightarrow \mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{395}/Γ

$X(214)$ is a hypothetical particle of mass 214 MeV/c^2 reported by the HyperCP experiment (PARK 05)

VALUE (units 10^{-8})	CL%	DOCUMENT ID		TECN	COMMENT
<2.26	90	[1,2] HYUN	10	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Based on scalar nature of X particle. With a vector X assumption, the upper limit is 2.27×10^{-8}.

$\Gamma(K^0\pi^+\pi^-\gamma)/\Gamma_{\text{total}}$ Γ_{396}/Γ

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
1.99±0.18 OUR AVERAGE				
$2.05 \pm 0.20^{+0.26}_{-0.22}$	[1,2] DEL-AMO-SA...	16	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
1.85±0.21±0.12	[1,3] AUBERT	07R	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
2.40±0.4 ±0.3	[3,4] YANG	05	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

[1] $M_{K\pi\pi} <$ 1.8 GeV/c^2.

[2] Uses B($\Upsilon(4S) \to B^+ B^-$) = 0.513 ± 0.006.
[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[4] $M_{K\pi\pi} < 2.0$ GeV/c^2.

$\Gamma(K^+\pi^-\pi^0\gamma)/\Gamma_{\text{total}}$ Γ_{397}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
4.07±0.22±0.31	[1,2] AUBERT	07R	BABR	$e^+e^- \to \Upsilon(4S)$

[1] $M_{K\pi\pi} < 1.8$ GeV/c^2.
[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K_1(1270)^0\gamma)/\Gamma_{\text{total}}$ Γ_{398}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
< 5.8	90	[1] YANG	05	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<700	90	[2] ALBRECHT	89G	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[2] ALBRECHT 89G reports < 0.0078 assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K_1(1400)^0\gamma)/\Gamma_{\text{total}}$ Γ_{399}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
< 1.2	90	[1] YANG	05	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<430	90	[2] ALBRECHT	89G	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[2] ALBRECHT 89G reports < 0.0048 assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K_2^*(1430)^0\gamma)/\Gamma_{\text{total}}$ Γ_{400}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.24±0.24 OUR AVERAGE					
1.22±0.25±0.10		[1] AUBERT,B	04U	BABR	$e^+e^- \to \Upsilon(4S)$
1.3 ±0.5 ±0.1		[1] NISHIDA	02	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<40	90	[2] ALBRECHT	89G	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[2] ALBRECHT 89G reports $< 4.4 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^*(1680)^0\gamma)/\Gamma_{\text{total}}$ Γ_{401}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.0020	90	[1] ALBRECHT	89G	ARG	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 89G reports < 0.0022 assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K_3^*(1780)^0\gamma)/\Gamma_{\text{total}}$ Γ_{402}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
< 83	90	[1,2] NISHIDA 05	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<10000	90	[3] ALBRECHT 89G	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses B($K_3^*(1780) \to \eta K$) = $0.11^{+0.05}_{-0.04}$.

[3] ALBRECHT 89G reports < 0.011 assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}{}^0$. We rescale to 50%.

$\Gamma(K_4^*(2045)^0\gamma)/\Gamma_{\text{total}}$ Γ_{403}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<0.0043	90	[1] ALBRECHT 89G	ARG	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 89G reports < 0.0048 assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}{}^0$. We rescale to 50%.

$\Gamma(\rho^0\gamma)/\Gamma_{\text{total}}$ Γ_{404}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
0.86±0.15 OUR AVERAGE				
$0.97^{+0.24}_{-0.22}\pm0.06$		[1] AUBERT 08BH	BABR	$e^+e^- \to \Upsilon(4S)$
$0.78^{+0.17}_{-0.16}{}^{+0.09}_{-0.10}$		[1] TANIGUCHI 08	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.79^{+0.22}_{-0.20}\pm0.06$		[1] AUBERT 07L	BABR	Repl. by AUBERT 08BH
$1.25^{+0.37}_{-0.33}{}^{+0.07}_{-0.06}$		[1] MOHAPATRA 06	BELL	Repl. by TANIGUCHI 08
0.0 ±0.2 ±0.1	90	[1] AUBERT 05	BABR	Repl. by AUBERT 07L
< 0.8	90	[1] MOHAPATRA 05	BELL	$e^+e^- \to \Upsilon(4S)$
< 1.2	90	[1] AUBERT 04C	BABR	$e^+e^- \to \Upsilon(4S)$
<17	90	[1] COAN 00	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\rho^0 X(214),\ X \to \mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{405}/Γ

$X(214)$ is a hypothetical particle of mass 214 MeV/c^2 reported by the HyperCP experiment (PARK 05)

VALUE (units 10^{-8})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<1.73	90	[1,2] HYUN 10	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] The result is the same for a scalar or vector X particle.

$\Gamma(\rho^0\gamma)/\Gamma(K^*(892)^0\gamma)$ $\Gamma_{404}/\Gamma_{392}$

VALUE (units 10^{-2})	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{2.06^{+0.45}_{-0.43}{}^{+0.14}_{-0.16}}$	TANIGUCHI 08	BELL	$e^+e^- \to \Upsilon(4S)$

$\Gamma(\omega\gamma)/\Gamma_{\text{total}}$ Γ_{406}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.44^{+0.18}_{-0.16}$ OUR AVERAGE				
$0.50^{+0.27}_{-0.23}\pm0.09$		[1] AUBERT 08BH	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
$0.40^{+0.19}_{-0.17}\pm0.13$		[1] TANIGUCHI 08	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.40^{+0.24}_{-0.20}\pm0.05$		[1] AUBERT 07L	BABR	Repl. by AUBERT 08BH
$0.56^{+0.34}_{-0.27}{}^{+0.05}_{-0.10}$		[1] MOHAPATRA 06	BELL	Repl. by TANIGUCHI 08
<1.0	90	[1] AUBERT 05	BABR	Repl. by AUBERT 07L
<0.8	90	[1] MOHAPATRA 05	BELL	Repl. by MOHAPATRA 06
<1.0	90	[1] AUBERT 04C	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
<9.2	90	[1] COAN 00	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\phi\gamma)/\Gamma_{\text{total}}$ Γ_{407}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<1.0\times10^{-7}$	90	[1] KING 16	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<8.5\times10^{-7}$	90	[1] AUBERT,BE 05C	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
$<3.3\times10^{-6}$	90	[1] COAN 00	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(f_2(1270)\gamma,\ f_2 \rightarrow (KS)^0(KS)^0)/\Gamma_{\text{total}}$ Γ_{408}/Γ

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$<3.1\times10^{-7}$	JEON 22	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

$\Gamma(f_2'(1525)\gamma,\ f_2' \rightarrow (KS)^0(KS)^0)/\Gamma_{\text{total}}$ Γ_{409}/Γ

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$<2.1\times10^{-7}$	JEON 22	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

$\Gamma(\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{410}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
5.12 ± 0.19 OUR FIT				
5.13 ± 0.24 OUR AVERAGE				
$5.04\pm0.21\pm0.18$		[1] DUH 13	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
$5.5\ \pm0.4\ \pm0.3$		[1] AUBERT 07B	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
$4.5\ {}^{+1.4}_{-1.2}\ {}^{+0.5}_{-0.4}$		[1] BORNHEIM 03	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$5.1\ \pm0.2\ \pm0.2$		[1] LIN 07A	BELL	Repl. by DUH 13
$4.4\ \pm0.6\ \pm0.3$		[1] CHAO 04	BELL	Repl. by LIN 07A
$4.7\ \pm0.6\ \pm0.2$		[1] AUBERT 02Q	BABR	Repl. by AUBERT 07B
$5.4\ \pm1.2\ \pm0.5$		[1] CASEY 02	BELL	Repl. by CHAO 04
$5.6\ {}^{+2.3}_{-2.0}\ {}^{+0.4}_{-0.5}$		[1] ABE 01H	BELL	Repl. by CASEY 02
$4.1\ \pm1.0\ \pm0.7$		[1] AUBERT 01E	BABR	Repl. by AUBERT 02Q

< 67	90	[2] ABE 00C	SLD	$e^+e^- \to Z$
$4.3\ ^{+1.6}_{-1.4}\ \pm0.5$		[1] CRONIN-HEN..00	CLE2	Repl. by BORNHEIM 03
< 15	90	GODANG 98	CLE2	Repl. by CRONIN-HENNESSY 00
< 45	90	[3] ADAM 96D	DLPH	$e^+e^- \to Z$
< 20	90	ASNER 96	CLE2	Repl. by GODANG 98
< 41	90	[4] BUSKULIC 96V	ALEP	$e^+e^- \to Z$
< 55	90	[5] ABREU 95N	DLPH	Sup. by ADAM 96D
< 47	90	[6] AKERS 94L	OPAL	$e^+e^- \to Z$
< 29	90	[1] BATTLE 93	CLE2	$e^+e^- \to \Upsilon(4S)$
<130	90	[1] ALBRECHT 90B	ARG	$e^+e^- \to \Upsilon(4S)$
< 77	90	[7] BORTOLETTO89	CLEO	$e^+e^- \to \Upsilon(4S)$
<260	90	[7] BEBEK 87	CLEO	$e^+e^- \to \Upsilon(4S)$
<500	90	GILES 84	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ABE 00C assumes B($Z \to b\overline{b}$)=(21.7 ± 0.1)% and the B fractions $f_{B^0}=f_{B^+}=(39.7^{+1.8}_{-2.2})$% and $f_{B_s}=(10.5^{+1.8}_{-2.2})$%.

[3] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$.

[4] BUSKULIC 96V assumes PDG 96 production fractions for B^0, B^+, B_s, b baryons.

[5] Assumes a B^0, B^- production fraction of 0.39 and a B_s production fraction of 0.12.

[6] Assumes B($Z \to b\overline{b}$) = 0.217 and B^0_d (B^0_s) fraction 39.5% (12%).

[7] Paper assumes the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(\pi^+\pi^-)/\Gamma(K^+\pi^-)$ $\Gamma_{410}/\Gamma_{275}$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.261±0.010 OUR FIT			
0.261±0.015 OUR AVERAGE			
0.262±0.009±0.017	AAIJ 12AR	LHCB	pp at 7 TeV
0.259±0.017±0.016	AALTONEN 11N	CDF	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.21 ±0.05 ±0.03	ABULENCIA,A 06D	CDF	Repl. by AALTONEN 11N

$\Gamma(\pi^0\pi^0)/\Gamma_{\text{total}}$ Γ_{411}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
1.59±0.26 OUR AVERAGE		Error includes scale factor of 1.4.		
1.31±0.19±0.19		[1] JULIUS 17	BELL	$e^+e^- \to \Upsilon(4S)$
1.83±0.21±0.13		[1] LEES 13D	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.47±0.25±0.12		[1] AUBERT 07BC	BABR	Repl. by LEES 13D
1.17±0.32±0.10		[1] AUBERT 05L	BABR	Repl. by AUBERT 07BC
$2.3\ ^{+0.4}_{-0.5}\ ^{+0.2}_{-0.3}$		[1] CHAO 05	BELL	Repl. by JULIUS 17
< 3.6	90	[1] AUBERT 03L	BABR	$e^+e^- \to \Upsilon(4S)$
2.1 ±0.6 ±0.3		[1] AUBERT 03S	BABR	Repl. by AUBERT 05L
< 4.4	90	[1] BORNHEIM 03	CLE2	$e^+e^- \to \Upsilon(4S)$
1.7 ±0.6 ±0.2		[1] LEE 03	BELL	Repl. by CHAO 05
< 5.7	90	[1] ASNER 02	CLE2	$e^+e^- \to \Upsilon(4S)$
< 6.4	90	[1] CASEY 02	BELL	$e^+e^- \to \Upsilon(4S)$

< 9.3	90	GODANG 98	CLE2	Repl. by ASNER 02
< 9.1	90	ASNER 96	CLE2	Repl. by GODANG 98
<60	90	[2] ACCIARRI 95H	L3	$e^+e^- \to Z$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ACCIARRI 95H assumes $f_{B^0} = 39.5 \pm 4.0$ and $f_{B_s} = 12.0 \pm 3.0\%$.

$\Gamma(\eta\pi^0)/\Gamma_{\text{total}}$ Γ_{412}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{0.41^{+0.17+0.05}_{-0.15-0.07}}$		[1,2] PAL 15	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
< 1.5	90	[2] AUBERT 08AH	BABR	$e^+e^- \to \Upsilon(4S)$
< 1.3	90	[2] AUBERT 06W	BABR	Repl. by AUBERT 08AH
< 2.5	90	[2] CHANG 05A	BELL	Repl. by PAL 15
< 2.5	90	[2] AUBERT,B 04D	BABR	Repl. by AUBERT 06W
< 2.9	90	[2] RICHICHI 00	CLE2	$e^+e^- \to \Upsilon(4S)$
< 8	90	BEHRENS 98	CLE2	Repl. by RICHICHI 00
< 250	90	[3] ACCIARRI 95H	L3	$e^+e^- \to Z$
<1800	90	[2] ALBRECHT 90B	ARG	$e^+e^- \to \Upsilon(4S)$

[1] PAL 15 signal significance is 3.0 standard deviations. The measurement corresponds to 90% CL upper limit of $< 6.5 \times 10^{-7}$.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] ACCIARRI 95H assumes $f_{B^0} = 39.5 \pm 4.0$ and $f_{B_s} = 12.0 \pm 3.0\%$.

$\Gamma(\eta\eta)/\Gamma_{\text{total}}$ Γ_{413}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{< 1.0}$	90	[1] AUBERT 09AV	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
< 1.8	90	[1] AUBERT,B 06V	BABR	Repl. by AUBERT 09AV
< 2.0	90	[1] CHANG 05A	BELL	$e^+e^- \to \Upsilon(4S)$
< 2.8	90	[1] AUBERT,B 04X	BABR	$e^+e^- \to \Upsilon(4S)$
< 18	90	BEHRENS 98	CLE2	$e^+e^- \to \Upsilon(4S)$
<410	90	[2] ACCIARRI 95H	L3	$e^+e^- \to Z$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ACCIARRI 95H assumes $f_{B^0} = 39.5 \pm 4.0$ and $f_{B_s} = 12.0 \pm 3.0\%$.

$\Gamma(\eta'\pi^0)/\Gamma_{\text{total}}$ Γ_{414}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
1.2±0.6 OUR AVERAGE	Error includes scale factor of 1.7.			
$0.9 \pm 0.4 \pm 0.1$		[1] AUBERT 08AH	BABR	$e^+e^- \to \Upsilon(4S)$
$2.8 \pm 1.0 \pm 0.3$		[1] SCHUEMANN 06	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.8^{+0.8}_{-0.6} \pm 0.1$		[1] AUBERT 06W	BABR	Repl. by AUBERT 08AH
$1.0^{+1.4}_{-1.0} \pm 0.8$	90	[1] AUBERT,B 04D	BABR	Repl. by AUBERT 06W
< 5.7	90	[1] RICHICHI 00	CLE2	$e^+e^- \to \Upsilon(4S)$
<11	90	BEHRENS 98	CLE2	Repl. by RICHICHI 00

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta'\eta')/\Gamma_{\text{total}}$ Γ_{415}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<$ 1.7	90	[1] AUBERT	09AV	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$ 6.5	90	[1] SCHUEMANN	07	BELL	$e^+e^- \to \Upsilon(4S)$
$<$ 2.4	90	[1] AUBERT,B	06V	BABR	Repl. by AUBERT 09AV
$<$10	90	[1] AUBERT,B	04X	BABR	Repl. by AUBERT,B 06V
$<$47	90	BEHRENS	98	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta'\eta)/\Gamma_{\text{total}}$ Γ_{416}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<$ 1.2	90	[1] AUBERT	08AH	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$ 4.5	90	[1] SCHUEMANN	07	BELL	$e^+e^- \to \Upsilon(4S)$
$<$ 1.7	90	[1] AUBERT	06W	BABR	Repl. by AUBERT 08AH
$<$ 4.6	90	[1] AUBERT,B	04X	BABR	$e^+e^- \to \Upsilon(4S)$
$<$27	90	BEHRENS	98	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta'\rho^0)/\Gamma_{\text{total}}$ Γ_{417}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<$ 1.3	90	[1] SCHUEMANN	07	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$ 2.8	90	[1] DEL-AMO-SA..	10A	BABR	$e^+e^- \to \Upsilon(4S)$
$<$ 3.7	90	AUBERT	07E	BABR	Repl. by DEL-AMO-SANCHEZ 10A
$<$ 4.3	90	[1] AUBERT,B	04D	BABR	Repl. by AUBERT 07E
$<$12	90	[1] RICHICHI	00	CLE2	$e^+e^- \to \Upsilon(4S)$
$<$23	90	BEHRENS	98	CLE2	Repl. by RICHICHI 00

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta' f_0(980),\ f_0 \to \pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{418}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<$0.9	90	[1] DEL-AMO-SA..	10A	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$1.5	90	AUBERT	07E	BABR	Repl. by DEL-AMO-SANCHEZ 10A

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta\rho^0)/\Gamma_{\text{total}}$ Γ_{419}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<$ 1.5	90	[1] AUBERT	07Y	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$ 1.9	90	[1] WANG	07B	BELL	$e^+e^- \to \Upsilon(4S)$
$<$ 1.5	90	[1] AUBERT,B	04D	BABR	Repl. by AUBERT 07Y
$<$10	90	[1] RICHICHI	00	CLE2	$e^+e^- \to \Upsilon(4S)$
$<$13	90	BEHRENS	98	CLE2	Repl. by RICHICHI 00

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta f_0(980),\ f_0 \to \pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{420}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.4	90	[1] AUBERT	07Y	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\omega\eta)/\Gamma_{\text{total}}$ Γ_{421}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.94^{+0.35}_{-0.30}\pm0.09}$		[1] AUBERT	09AV	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$ 1.9	90	[1] AUBERT,B	05K	BABR	Repl. by AUBERT 09AV
$4.0\ ^{+1.3}_{-1.2}\ \pm0.4$		[1] AUBERT,B	04X	BABR	Repl. by AUBERT,B 05K
$<$12	90	[1] BERGFELD	98	CLE2	

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\omega\eta')/\Gamma_{\text{total}}$ Γ_{422}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{1.01^{+0.46}_{-0.38}\pm0.09}$		[1] AUBERT	09AV	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$ 2.2	90	[1] SCHUEMANN	07	BELL	$e^+e^- \to \Upsilon(4S)$
$<$ 2.8	90	[1] AUBERT,B	04X	BABR	$e^+e^- \to \Upsilon(4S)$
$<$60	90	[1] BERGFELD	98	CLE2	

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\omega\rho^0)/\Gamma_{\text{total}}$ Γ_{423}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
< 1.6	90	[1] AUBERT	09H	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$ 1.5	90	[1] AUBERT,B	06T	BABR	Repl. by AUBERT 09H
$<$ 3.3	90	[1] AUBERT	05O	BABR	Repl. by AUBERT,B 06T
$<$11	90	[1] BERGFELD	98	CLE2	

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\omega f_0(980),\ f_0 \to \pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{424}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.5	90	[1] AUBERT	09H	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$1.5	90	[1] AUBERT,B	06T	BABR	Repl. by AUBERT 09H

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\omega\omega)/\Gamma_{\text{total}}$ Γ_{425}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{1.2\pm0.3^{+0.3}_{-0.2}}$		[1] LEES	14	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<$ 4.0	90	[1] AUBERT,B	06T	BABR	Repl. by LEES 14
$<$19	90	[1] BERGFELD	98	CLE2	

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\phi\pi^0)/\Gamma_{\text{total}}$ Γ_{426}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.15	90	[1] KIM	12A	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$0.28	90	[1] AUBERT,B	06C	BABR	$e^+e^- \to \Upsilon(4S)$
$<$1.0	90	[1] AUBERT,B	04D	BABR	Repl. by AUBERT,B 06C
$<$5	90	[1] BERGFELD	98	CLE2	

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\phi\eta)/\Gamma_{\text{total}}$ Γ_{427}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.5	90	[1] AUBERT	09AV	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$0.6	90	[1] AUBERT,B	06V	BABR	Repl. by AUBERT 09AV
$<$1.0	90	[1] AUBERT,B	04X	BABR	Repl. by AUBERT,B 06V
$<$9	90	[1] BERGFELD	98	CLE2	

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\phi\eta')/\Gamma_{\text{total}}$ Γ_{428}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
< 0.5	90	[1] SCHUEMANN	07	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$ 1.1	90	[1] AUBERT	09AV	BABR	$e^+e^- \to \Upsilon(4S)$
$<$ 1.0	90	[1] AUBERT,B	06V	BABR	Repl. by AUBERT 09AV
$<$ 4.5	90	[1] AUBERT,B	04X	BABR	Repl. by AUBERT,B 06V
$<$31	90	[1] BERGFELD	98	CLE2	

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\phi\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{429}/Γ

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.82±0.25±0.43	[1] AAIJ	17A	LHCB	pp at 7, 8 TeV

[1] Signal evidence is 4.5 standard deviations.

$\Gamma(\phi\rho^0)/\Gamma_{\text{total}}$ Γ_{430}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
< 0.33	90	[1] AUBERT	08BK	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$156	90	[2] ABE	00C	SLD	$e^+e^- \to Z$
$<$ 13	90	[1] BERGFELD	98	CLE2	

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ABE 00C assumes B($Z \to b\overline{b}$)=(21.7 ± 0.1)% and the B fractions $f_{B^0}=f_{B^+}=(39.7^{+1.8}_{-2.2})$% and $f_{B_s}=(10.5^{+1.8}_{-2.2})$%.

$\Gamma(\phi f_0(980),\ f_0 \to \pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{431}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<0.38	90	[1] AUBERT 08BK	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\phi\omega)/\Gamma_{\text{total}}$ Γ_{432}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
< 0.7	90	[1] LEES 14	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
< 1.2	90	[1] AUBERT,B 06T	BABR	Repl. by LEES 14
<21	90	[1] BERGFELD 98	CLE2	

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\phi\phi)/\Gamma_{\text{total}}$ Γ_{433}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<2.7 \times 10^{-8}$	90	AAIJ 19AP	LHCB	pp at 7, 8 and 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$<2.8 \times 10^{-8}$	90	AAIJ 15AS	LHCB	Repl. by AAIJ 19AP
$<2 \times 10^{-7}$	90	[1] AUBERT 08BK	BABR	$e^+e^- \to \Upsilon(4S)$
$<1.5 \times 10^{-6}$	90	[1] AUBERT,B 04X	BABR	Repl. by AUBERT 08BK
$<3.21 \times 10^{-4}$	90	[2] ABE 00C	SLD	$e^+e^- \to Z$
$<1.2 \times 10^{-5}$	90	[1] BERGFELD 98	CLE2	
$<3.9 \times 10^{-5}$	90	ASNER 96	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ABE 00C assumes B($Z \to b\bar{b}$)=(21.7 ± 0.1)% and the B fractions $f_{B^0}=f_{B^+}=(39.7^{+1.8}_{-2.2})$% and $f_{B_s}=(10.5^{+1.8}_{-2.2})$%.

$\Gamma(a_0(980)^\pm\pi^\mp,\ a_0^\pm \to \eta\pi^\pm)/\Gamma_{\text{total}}$ Γ_{434}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<3.1	90	[1] AUBERT 07Y	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<5.1	90	[1] AUBERT,BE 04	BABR	Repl. by AUBERT 07Y

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(a_0(1450)^\pm\pi^\mp,\ a_0^\pm \to \eta\pi^\pm)/\Gamma_{\text{total}}$ Γ_{435}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<2.3	90	[1] AUBERT 07Y	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\pi^+\pi^-\pi^0)/\Gamma_{\text{total}}$ Γ_{436}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<7.2 \times 10^{-4}$	90	[1] ALBRECHT 90B	ARG	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(\rho^0\pi^0)/\Gamma_{total}$ Γ_{437}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
2.0 ±0.5 OUR AVERAGE					
3.0 ±0.5 ±0.7		[1,2] KUSAKA	08	BELL	$e^+e^- \to \Upsilon(4S)$
1.4 ±0.6 ±0.3		[1] AUBERT	04Z	BABR	$e^+e^- \to \Upsilon(4S)$
$1.6\ ^{+2.0}_{-1.4}$ ±0.8		[1] JESSOP	00	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$3.12^{+0.88}_{-0.82}{}^{+0.60}_{-0.76}$		[1] DRAGIC	06	BELL	Repl. by KUSAKA 08
5.1 ±1.6 ±0.9		DRAGIC	04	BELL	Repl. by DRAGIC 06
$<$ 5.3	90	[1] GORDON	02	BELL	Repl. by DRAGIC 04
$<$ 24	90	ASNER	96	CLEO	Repl. by JESSOP 00
$<$400	90	[1] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] This is the first measurement that excludes contributions from $\rho(1450)$ and $\rho(1570)$ resonances.

$\Gamma(\rho^\mp\pi^\pm)/\Gamma_{total}$ Γ_{438}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
23.0±2.3 OUR AVERAGE					
22.6±1.1±4.4		[1,2] KUSAKA	08	BELL	$e^+e^- \to \Upsilon(4S)$
22.6±1.8±2.2		[1] AUBERT	03T	BABR	$e^+e^- \to \Upsilon(4S)$
$27.6^{+8.4}_{-7.4}$±4.2		[1] JESSOP	00	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$20.8^{+6.0}_{-6.3}{}^{+2.8}_{-3.1}$		[1] GORDON	02	BELL	Repl. by KUSAKA 08
$<$ 88	90	ASNER	96	CLE2	Repl. by JESSOP 00
$<$ 520	90	[1] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$
$<$5200	90	[3] BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] This is the first measurement that excludes contributions from $\rho(1450)$ and $\rho(1570)$ resonances.

[3] BEBEK 87 reports $< 6.1 \times 10^{-3}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(\pi^+\pi^-\pi^+\pi^-)/\Gamma_{total}$ Γ_{439}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<11.2 \times 10^{-6}}$	90	[1] VANHOEFER	14	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<23.1 \times 10^{-6}$	90	[1] AUBERT	08BB	BABR	$e^+e^- \to \Upsilon(4S)$
$<19.3 \times 10^{-6}$	90	[1] CHIANG	08	BELL	Repl. by VANHOEFER 14
$< 2.3 \times 10^{-4}$	90	[2] ADAM	96D	DLPH	$e^+e^- \to Z$
$< 2.8 \times 10^{-4}$	90	[3] ABREU	95N	DLPH	Sup. by ADAM 96D
$< 6.7 \times 10^{-4}$	90	[1] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$.

[3] Assumes a B^0, B^- production fraction of 0.39 and a B_s production fraction of 0.12.

$\Gamma(\rho^0\pi^+\pi^-)/\Gamma_{\rm total}$ Γ_{440}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
< 8.8	90	[1] AUBERT	08BB	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<12.0	90	[1] VANHOEFER	14	BELL	$e^+e^- \to \Upsilon(4S)$
<12.0	90	[1] CHIANG	08	BELL	Repl. by VANHOEFER 14

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\rho^0\rho^0)/\Gamma_{\rm total}$ Γ_{441}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.96±0.15 OUR FIT					
0.97±0.24 OUR AVERAGE					
1.02±0.30±0.15		[1,2] VANHOEFER	14	BELL	$e^+e^- \to \Upsilon(4S)$
0.92±0.32±0.14		[2] AUBERT	08BB	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.4 \pm 0.4 {}^{+0.2}_{-0.3}$		[2] CHIANG	08	BELL	Repl. by VANHOEFER 14
1.07±0.33±0.19		[2] AUBERT	07G	BABR	Repl. by AUBERT 08BB
< 1.1	90	[2] AUBERT	05I	BABR	Repl. by AUBERT 07G
< 2.1	90	[2] AUBERT	03V	BABR	Repl. by AUBERT 05I
< 18	90	[3] GODANG	02	CLE2	$e^+e^- \to \Upsilon(4S)$
<136	90	[4] ABE	00C	SLD	$e^+e^- \to Z$
<280	90	[2] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$
<290	90	[5] BORTOLETTO	89	CLEO	$e^+e^- \to \Upsilon(4S)$
<430	90	[5] BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] Signal significance 3.4 standard deviations.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] Assumes a helicity 00 configuration. For a helicity 11 configuration, the limit decreases to 1.4×10^{-5}.

[4] ABE 00C assumes B($Z \to b\overline{b}$)=(21.7 ± 0.1)% and the B fractions $f_{B^0}=f_{B^+}=(39.7^{+1.8}_{-2.2})$% and $f_{B_s}=(10.5^{+1.8}_{-2.2})$%.

[5] Paper assumes the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(\rho^0\rho^0)/\Gamma(K^*(892)^0\phi)$ $\Gamma_{441}/\Gamma_{364}$

VALUE (units 10^{-2})	*DOCUMENT ID*		*TECN*	*COMMENT*
9.5±1.5 OUR FIT				
9.4±1.7±0.9	AAIJ	15T	LHCB	pp at 7, 8 TeV

$\Gamma(f_0(980)\pi^+\pi^-,\ f_0 \to \pi^+\pi^-)/\Gamma_{\rm total}$ Γ_{442}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<3.0 \times 10^{-6}$	90	[1] VANHOEFER	14	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<3.8 \times 10^{-6}$	90	[1] CHIANG	08	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\rho^0 f_0(980),\ f_0 \to \pi^+\pi^-)/\Gamma_{\rm total}$ Γ_{443}/Γ

VALUE (units 10^{-7})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
7.8±2.2±1.1		[1,2] VANHOEFER	14	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

<8.1	90	AAIJ 15T	LHCB	pp at 7, 8 TeV
<4.0	90	[2] AUBERT 08BB	BABR	$e^+e^- \to \Upsilon(4S)$
<3	90	[2] CHIANG 08	BELL	Repl. by VANHOEFER 14
<5.3	90	[2] AUBERT 07G	BABR	Repl. by AUBERT 08BB

[1] Signal significance of 3.1 standard deviations.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(f_0(980) f_0(980),\ f_0 \to \pi^+\pi^-,\ f_0 \to \pi^+\pi^-\big)/\Gamma_{\text{total}}$ Γ_{444}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<0.19	90	[1] AUBERT 08BB	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

<0.2	90	[1] VANHOEFER 14	BELL	$e^+e^- \to \Upsilon(4S)$
<0.1	90	[1] CHIANG 08	BELL	Repl. by VANHOEFER 14
<0.16	90	[1] AUBERT 07G	BABR	Repl. by AUBERT 08BB

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(f_0(980) f_0(980),\ f_0 \to \pi^+\pi^-,\ f_0 \to K^+K^-\big)/\Gamma_{\text{total}}$ Γ_{445}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<0.23	90	[1] AUBERT 08BK	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma\big(a_1(1260)^\mp \pi^\pm\big)/\Gamma_{\text{total}}$ Γ_{446}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
26 ±5 OUR AVERAGE		Error includes scale factor of 1.9.		
22.2±2.0±2.8		[1,2] DALSENO 12	BELL	$e^+e^- \to \Upsilon(4S)$
33.2±3.8±3.0		[2,3] AUBERT 06V	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

< 630	90	[2] ALBRECHT 90B	ARG	$e^+e^- \to \Upsilon(4S)$
< 490	90	[4] BORTOLETTO 89	CLEO	$e^+e^- \to \Upsilon(4S)$
<1000	90	[4] BEBEK 87	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] DALSENO 12 reports B($B^0 \to a_1^\pm \pi^\mp$) B($a_1^\pm \to \pi^\pm\pi^+\pi^-$) = $(11.1 \pm 1.0 \pm 1.4) \times 10^{-6}$ which we rescaled assuming $a_1(1260)$ decays only to 3π and B($a_1^\pm \to \pi^\pm\pi^+\pi^-$) = 0.5.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] Assumes $a_1(1260)$ decays only to 3π and B($a_1^\pm \to \pi^\pm\pi^\mp\pi^\pm$) = 0.5.

[4] Paper assumes the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}{}^0$. We rescale to 50%.

$\Gamma\big(a_2(1320)^\mp \pi^\pm\big)/\Gamma_{\text{total}}$ Γ_{447}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<6.3 \times 10^{-6}$	90	[1] DALSENO 12	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<3.0 \times 10^{-4}$	90	[2] BORTOLETTO 89	CLEO	$e^+e^- \to \Upsilon(4S)$
$<1.4 \times 10^{-3}$	90	[2] BEBEK 87	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] DALSENO 12 reports B($B^0 \to a_2^\pm \pi^\mp$) B($a_2^\pm \to \pi^\pm\pi^+\pi^-$) < 2.2×10^{-6} which we rescaled using B($a_2^\pm \to \pi^\pm\pi^+\pi^-$) = 1/2 B($a_2^\pm \to 3\pi$) = 0.35 ± 0.013.

[2] Paper assumes the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}{}^0$. We rescale to 50%.

$\Gamma(\pi^+\pi^-\pi^0\pi^0)/\Gamma_{\text{total}}$ Γ_{448}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<3.1 \times 10^{-3}$	90	[1] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(\rho^+\rho^-)/\Gamma_{\text{total}}$ Γ_{449}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
27.7±1.9 OUR AVERAGE					
$28.3\pm1.5\pm1.5$		[1] VANHOEFER	16	BELL	$e^+e^- \to \Upsilon(4S)$
$25.5\pm2.1^{+3.6}_{-3.9}$		[1] AUBERT	07BF	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$22.8\pm3.8^{+2.3}_{-2.6}$		[1] SOMOV	06	BELL	Repl. by VANHOEFER 16
$25\ ^{+7}_{-6}\ ^{+5}_{-6}$		[1] AUBERT	04G	BABR	Repl. by AUBERT,B 04R
$30\ \pm4\ \pm5$		[1,2] AUBERT,B	04R	BABR	Repl. by AUBERT 07BF
<2200	90	[1] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] The quoted result is obtained after combining with AUBERT 04G result by AUBERT 04R alone gives $(33 \pm 4 \pm 5) \times 10^{-6}$.

$\Gamma(a_1(1260)^0\pi^0)/\Gamma_{\text{total}}$ Γ_{450}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<1.1 \times 10^{-3}$	90	[1] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(\omega\pi^0)/\Gamma_{\text{total}}$ Γ_{451}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<$ 0.5	90	[1] AUBERT	08AH	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<$ 2.0	90	[1] JEN	06	BELL	$e^+e^- \to \Upsilon(4S)$
$<$ 1.2	90	[1] AUBERT,B	04D	BABR	Repl. by AUBERT 08AH
$<$ 1.9	90	[1] WANG	04A	BELL	$e^+e^- \to \Upsilon(4S)$
$<$ 3	90	[1] AUBERT	01G	BABR	$e^+e^- \to \Upsilon(4S)$
$<$ 5.5	90	[1] JESSOP	00	CLE2	$e^+e^- \to \Upsilon(4S)$
$<$ 14	90	[1] BERGFELD	98	CLE2	Repl. by JESSOP 00
$<$460	90	[2] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(\pi^+\pi^+\pi^-\pi^-\pi^0)/\Gamma_{\text{total}}$ Γ_{452}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<9.0 \times 10^{-3}$	90	[1] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(a_1(1260)^+\rho^-)/\Gamma_{\text{total}}$ Γ_{453}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
< 61	90	[1,2] AUBERT,B	06O	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<3400	90	[1] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Assumes $a_1(1260)$ decays only to 3π and B$(a_1^\pm \to \pi^\pm\pi^\mp\pi^\pm) = 0.5$.

$\Gamma(a_1(1260)^0\rho^0)/\Gamma_{\text{total}}$ Γ_{454}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<2.4 \times 10^{-3}}$	90	[1] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}{}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(b_1^\mp\pi^\pm,\ b_1^\mp \to \omega\pi^\mp)/\Gamma_{\text{total}}$ Γ_{455}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
10.9±1.2±0.9	[1] AUBERT	07BI	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(b_1^0\pi^0,\ b_1^0 \to \omega\pi^0)/\Gamma_{\text{total}}$ Γ_{456}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.9	90	[1] AUBERT	08AG	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(b_1^-\rho^+,\ b_1^- \to \omega\pi^-)/\Gamma_{\text{total}}$ Γ_{457}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<1.4 \times 10^{-6}}$	90	[1] AUBERT	09AF	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(b_1^0\rho^0,\ b_1^0 \to \omega\pi^0)/\Gamma_{\text{total}}$ Γ_{458}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<3.4 \times 10^{-6}}$	90	[1] AUBERT	09AF	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-)/\Gamma_{\text{total}}$ Γ_{459}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<3.0 \times 10^{-3}}$	90	[1] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}{}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(a_1(1260)^+a_1(1260)^-,\ a_1^+ \to 2\pi^+\pi^-,\ a_1^- \to 2\pi^-\pi^+)/\Gamma_{\text{total}}$ Γ_{460}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
11.8±2.6±1.6		[1] AUBERT	09AL	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<6000	90	[1] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$
<2800	90	[2] BORTOLETTO	89	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of $B^0\overline{B}{}^0$ and B^+B^- at $\Upsilon(4S)$.

[2] BORTOLETTO 89 reports $< 3.2 \times 10^{-3}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}{}^0$. We rescale to 50%.

$\Gamma(\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0)/\Gamma_{\text{total}}$ Γ_{461}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<1.1 \times 10^{-2}$	90	[1] ALBRECHT	90B	ARG	$e^+e^- \to \Upsilon(4S)$

[1] ALBRECHT 90B limit assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(p\overline{p})/\Gamma_{\text{total}}$ Γ_{462}/Γ

VALUE (units 10^{-8})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$1.25 \pm 0.27 \pm 0.18$		[1] AAIJ	17BJ	LHCB	pp at 7 and 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.47^{+0.62}_{-0.51}{}^{+0.35}_{-0.14}$		[2] AAIJ	13BQ	LHCB	Repl. by AAIJ 17BJ
$<$ 11	90	[3] TSAI	07	BELL	$e^+e^- \to \Upsilon(4S)$
$<$ 41	90	[3] CHANG	05	BELL	$e^+e^- \to \Upsilon(4S)$
$<$ 27	90	[3] AUBERT	04U	BABR	$e^+e^- \to \Upsilon(4S)$
$<$ 140	90	[3] BORNHEIM	03	CLE2	$e^+e^- \to \Upsilon(4S)$
$<$ 120	90	[3] ABE	02O	BELL	$e^+e^- \to \Upsilon(4S)$
$<$ 700	90	[3] COAN	99	CLE2	$e^+e^- \to \Upsilon(4S)$
$<$ 1800	90	[4] BUSKULIC	96V	ALEP	$e^+e^- \to Z$
$<$35000	90	[5] ABREU	95N	DLPH	Sup. by ADAM 96D
$<$ 3400	90	[6] BORTOLETTO	89	CLEO	$e^+e^- \to \Upsilon(4S)$
$<$12000	90	[7] ALBRECHT	88F	ARG	$e^+e^- \to \Upsilon(4S)$
$<$17000	90	[6] BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] Uses normalization mode $\text{B}(B^0 \to K^+\pi^-) = (19.6 \pm 0.5) \times 10^{-6}$.

[2] Uses normalization mode $\text{B}(B^0 \to K^+\pi^-) = (19.55 \pm 0.54) \times 10^{-6}$.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[4] BUSKULIC 96V assumes PDG 96 production fractions for B^0, B^+, B_s, b baryons.

[5] Assumes a B^0, B^- production fraction of 0.39 and a B_s production fraction of 0.12.

[6] Paper assumes the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

[7] ALBRECHT 88F reports $< 1.3 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(p\overline{p}\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{463}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$2.87 \pm 0.15 \pm 0.11$		[1,2] AAIJ	17BD	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.83 \pm 0.17 \pm 0.17$		[3] CHU	20	BELL	$e^+e^- \to \Upsilon(4S)$
$<$950	90	[4] ABREU	95N	DLPH	Sup. by ADAM 96D
$<$250	90	[5] BEBEK	89	CLEO	$e^+e^- \to \Upsilon(4S)$
$540 \pm 180 \pm 200$		[6] ALBRECHT	88F	ARG	$e^+e^- \to \Upsilon(4S)$

[1] AAIJ 17BD reports $[\Gamma(B^0 \to p\overline{p}\pi^+\pi^-)/\Gamma_{\text{total}}]$ / $[\text{B}(B^0 \to J/\psi(1S)K^*(892)^0)]$ / $[\text{B}(J/\psi(1S) \to p\overline{p})]$ / $[\text{B}(K^*(892) \to (K\pi)^{\pm})] = 1.07 \pm 0.04 \pm 0.04$ which we multiply by our best values $\text{B}(B^0 \to J/\psi(1S)K^*(892)^0) = (1.27 \pm 0.05) \times 10^{-3}$, $\text{B}(J/\psi(1S) \to p\overline{p}) = (2.120 \pm 0.029) \times 10^{-3}$, $\text{B}(K^*(892) \to (K\pi)^{\pm}) = (99.902 \pm 0.009) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

[2] The branching ratio is given for $m_{p\overline{p}} <$2.85 GeV.

[3] Assumes equal production of B^0 and B^+ from $\Upsilon(4S)$ decays . This measurement is quoted for $\text{M}(\pi^+\pi^-) < 1.22$ GeV excluding the $0.46 < \text{M}(\pi^+\pi^-) < 0.53$ GeV region.

[4] Assumes a B^0, B^- production fraction of 0.39 and a B_s production fraction of 0.12.

[5] BEBEK 89 reports $< 2.9 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0 \overline{B}^0$. We rescale to 50%.

[6] ALBRECHT 88F reports $6.0 \pm 2.0 \pm 2.2$ assuming the $\Upsilon(4S)$ decays 45% to $B^0 \overline{B}^0$. We rescale to 50%.

$\Gamma(p\overline{p}\pi^+\pi^-)/\Gamma(p\overline{p}K^+\pi^-)$ — $\Gamma_{463}/\Gamma_{464}$

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.46 \pm 0.02 \pm 0.02$	[1] AAIJ	17BD	LHCB	pp at 7, 8 TeV

[1] The ratio is given for $m_{p\overline{p}} < 2.85$ GeV.

$\Gamma(p\overline{p}K^0)/\Gamma_{\text{total}}$ — Γ_{465}/Γ

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
2.66±0.32 OUR AVERAGE					
$2.51^{+0.35}_{-0.29} \pm 0.21$		[1,2] CHEN	08C	BELL	$e^+e^- \to \Upsilon(4S)$
$3.0 \pm 0.5 \pm 0.3$		[2] AUBERT	07AV	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$2.40^{+0.64}_{-0.44} \pm 0.28$		[2,3,4] WANG	05A	BELL	Repl. by CHEN 08C
$1.88^{+0.77}_{-0.60} \pm 0.23$		[2,3,5] WANG	04	BELL	Repl. by WANG 05A
<7.2	90	[2,3] ABE	02K	BELL	Repl. by WANG 04

[1] Explicitly vetoes resonant production of $p\overline{p}$ from charmonium states.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] Explicitly vetoes resonant production of $p\overline{p}$ from charmonium states and pK^0 production from Λ_c.

[4] Provides also results with $M_{p\overline{p}} < 2.85$ GeV/c^2 and angular asymmetry of $p\overline{p}$ system.

[5] The branching fraction for $M_{p\overline{p}} < 2.85$ is also reported.

$\Gamma(\Theta(1540)^+\overline{p},\ \Theta^+ \to pK^0_S)/\Gamma_{\text{total}}$ — Γ_{466}/Γ

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
<0.05	90	[1] AUBERT	07AV	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.23	90	[1] WANG	05A	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(f_J(2220)K^0,\ f_J \to p\overline{p})/\Gamma_{\text{total}}$ — Γ_{467}/Γ

VALUE (units 10^{-6})	CL%	DOCUMENT ID		TECN	COMMENT
<0.45	90	[1] AUBERT	07AV	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(p\overline{p}K^+\pi^-)/\Gamma_{\text{total}}$ Γ_{464}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
6.3±0.5±0.2	[1,2] AAIJ	17BD	LHCB	pp at 7, 8 TeV

[1] AAIJ 17BD reports $[\Gamma(B^0 \to p\overline{p}K^+\pi^-)/\Gamma_{\text{total}}]$ / $[B(B^0 \to J/\psi(1S)K^*(892)^0)]$ / $[B(J/\psi(1S) \to p\overline{p})]$ / $[B(K^*(892) \to (K\pi)^{\pm})] = 2.34 \pm 0.12 \pm 0.12$ which we multiply by our best values $B(B^0 \to J/\psi(1S)K^*(892)^0) = (1.27 \pm 0.05) \times 10^{-3}$, $B(J/\psi(1S) \to p\overline{p}) = (2.120 \pm 0.029) \times 10^{-3}$, $B(K^*(892) \to (K\pi)^{\pm}) = (99.902 \pm 0.009) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

[2] The branching ratio is given for $m_{p\overline{p}} < 2.85$ GeV.

$\Gamma(p\overline{p}K^*(892)^0)/\Gamma_{\text{total}}$ Γ_{468}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{1.24^{+0.28}_{-0.25}}$ **OUR AVERAGE**					
$1.18^{+0.29}_{-0.25}\pm0.11$		[1,2] CHEN	08C	BELL	$e^+e^- \to \Upsilon(4S)$
1.47±0.45±0.40		[2] AUBERT	07AV	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<7.6	90	[2] WANG	04	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Explicitly vetoes resonant production of $p\overline{p}$ from charmonium states.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(p\overline{p}\pi^0)/\Gamma_{\text{total}}$ Γ_{471}/Γ

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
5.0±1.8±0.6	PAL	19	BELL	$e^+e^- \to \Upsilon(4S)$

$\Gamma(f_J(2220)K^*_0,\ f_J \to p\overline{p})/\Gamma_{\text{total}}$ Γ_{469}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.15	90	[1] AUBERT	07AV	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(p\overline{p}K^+K^-)/\Gamma_{\text{total}}$ Γ_{470}/Γ

VALUE (units 10^{-8})	*DOCUMENT ID*		*TECN*	*COMMENT*
12.1±3.1±0.5	[1,2] AAIJ	17BD	LHCB	pp at 7, 8 TeV

[1] AAIJ 17BD reports $[\Gamma(B^0 \to p\overline{p}K^+K^-)/\Gamma_{\text{total}}]$ / $[B(B^0 \to J/\psi(1S)K^*(892)^0)]$ / $[B(J/\psi(1S) \to p\overline{p})]$ / $[B(K^*(892) \to (K\pi)^{\pm})] = 0.045 \pm 0.011 \pm 0.004$ which we multiply by our best values $B(B^0 \to J/\psi(1S)K^*(892)^0) = (1.27 \pm 0.05) \times 10^{-3}$, $B(J/\psi(1S) \to p\overline{p}) = (2.120 \pm 0.029) \times 10^{-3}$, $B(K^*(892) \to (K\pi)^{\pm}) = (99.902 \pm 0.009) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

[2] The branching ratio is given for $m_{p\overline{p}} < 2.85$ GeV.

$\Gamma(p\overline{p}K^+K^-)/\Gamma(p\overline{p}K^+\pi^-)$ $\Gamma_{470}/\Gamma_{464}$

VALUE (%)	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.9±0.5±0.2	[1] AAIJ	17BD	LHCB	pp at 7, 8 TeV

[1] The ratio is given for $m_{p\overline{p}} < 2.85$ GeV.

$\Gamma(p p \overline{p} \overline{p})/\Gamma_{\text{total}}$ Γ_{472}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<2.0 \times 10^{-7}$	90	[1] LEES	18C	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(p \overline{\Lambda} \pi^-)/\Gamma_{\text{total}}$ Γ_{473}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
3.14 ± 0.29 OUR AVERAGE					
$3.07 \pm 0.31 \pm 0.23$		[1] AUBERT	09AC	BABR	$e^+ e^- \to \Upsilon(4S)$
$3.23^{+0.33}_{-0.29} \pm 0.29$		[1] WANG	07C	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$2.62^{+0.44}_{-0.40} \pm 0.31$		[1,2] WANG	05A	BELL	Repl. by WANG 07C
$3.97^{+1.00}_{-0.80} \pm 0.56$		[1] WANG	03	BELL	Repl. by WANG 05A
< 13	90	[1] COAN	99	CLE2	$e^+ e^- \to \Upsilon(4S)$
<180	90	[3] ALBRECHT	88F	ARG	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Provides also results with $M_{p\overline{p}} < 2.85$ GeV/c^2 and angular asymmetry of $p\overline{\Lambda}$ system.

[3] ALBRECHT 88F reports $< 2.0 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 45% to $B^0 \overline{B}^0$. We rescale to 50%.

$\Gamma(p \overline{\Lambda} \pi^- \gamma)/\Gamma_{\text{total}}$ Γ_{474}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<6.5 \times 10^{-7}$	90	[1] LAI	14	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(p \overline{\Sigma}(1385)^-)/\Gamma_{\text{total}}$ Γ_{475}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.26	90	[1] WANG	07C	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\left[\Gamma(\Delta(1232)^+ \overline{p}) + \Gamma(\Delta(1232)^- p)\right]/\Gamma_{\text{total}}$ Γ_{476}/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$<1.6 \times 10^{-6}$	PAL	19	BELL	$e^+ e^- \to \Upsilon(4S)$

$\Gamma(\Delta^0 \overline{\Lambda})/\Gamma_{\text{total}}$ Γ_{477}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.93	90	[1] WANG	07C	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(p \overline{\Lambda} K^-)/\Gamma_{\text{total}}$ Γ_{478}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.82	90	[1] WANG	03	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(p\overline{\Lambda}D^-)/\Gamma_{\text{total}}$ Γ_{479}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
25.1±2.6±3.5	[1] CHANG	15	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(p\overline{\Lambda}D^{*-})/\Gamma_{\text{total}}$ Γ_{480}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
33.6±6.3±4.4	[1] CHANG	15	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(p\overline{\Sigma}^0\pi^-)/\Gamma_{\text{total}}$ Γ_{481}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<3.8 \times 10^{-6}$	90	[1] WANG	03	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{\Lambda}\Lambda)/\Gamma_{\text{total}}$ Γ_{482}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.32	90	[1] TSAI	07	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.69	90	[1] CHANG	05	BELL	Repl. by TSAI 07
<1.2	90	[1] BORNHEIM	03	CLE2	$e^+e^- \to \Upsilon(4S)$
<1.0	90	[1] ABE	02O	BELL	Repl. by CHANG 05
<3.9	90	[1] COAN	99	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{\Lambda}\Lambda K^0)/\Gamma_{\text{total}}$ Γ_{483}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$4.76^{+0.84}_{-0.68}\pm0.61$	[1,2] CHANG	09	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Excluding charmonium events in $2.85 < m_{\Lambda\overline{\Lambda}} < 3.128$ GeV/c^2 and $3.315 < m_{\Lambda\overline{\Lambda}} <$ 3.735 GeV/c^2. Measurements in various $m_{\Lambda\overline{\Lambda}}$ bins are also reported.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{\Lambda}\Lambda K^{*0})/\Gamma_{\text{total}}$ Γ_{484}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
$2.46^{+0.87}_{-0.72}\pm0.34$	[1,2] CHANG	09	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Excluding charmonium events in $2.85 < m_{\Lambda\overline{\Lambda}} < 3.128$ GeV/c^2 and $3.315 < m_{\Lambda\overline{\Lambda}} <$ 3.735 GeV/c^2. Measurements in various $m_{\Lambda\overline{\Lambda}}$ bins are also reported.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{\Lambda}\Lambda D^0)/\Gamma_{\text{total}}$ Γ_{485}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
$1.00^{+0.30}_{-0.26}$ OUR AVERAGE				
$0.98^{+0.29}_{-0.26}\pm0.19$	[1,2] LEES	14B	BABR	$e^+e^- \to \Upsilon(4S)$
$1.05^{+0.57}_{-0.44}\pm0.14$	[2] CHANG	09	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Evidence for 3.4 st. dev. signal significance.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^0\Sigma^0\overline{\Lambda}+\text{c.c.})/\Gamma_{\text{total}}$ Γ_{486}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<3.1\times10^{-5}$	90	[1,2] LEES	14B	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Here $\Sigma^0 \to \Lambda\gamma$.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\Delta^0\overline{\Delta}^0)/\Gamma_{\text{total}}$ Γ_{487}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.0015	90	[1] BORTOLETTO	89	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] BORTOLETTO 89 reports < 0.0018 assuming $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(\Delta^{++}\overline{\Delta}^{--})/\Gamma_{\text{total}}$ Γ_{488}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<1.1\times10^{-4}$	90	[1] BORTOLETTO	89	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] BORTOLETTO 89 reports $< 1.3\times10^{-4}$ assuming $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(\overline{D}^0 p\overline{p})/\Gamma_{\text{total}}$ Γ_{489}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.04±0.07 OUR AVERAGE				
$1.02\pm0.04\pm0.06$	[1,2] DEL-AMO-SA..	12	BABR	$e^+e^- \to \Upsilon(4S)$
$1.18\pm0.15\pm0.16$	[2] ABE	02W	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.13\pm0.06\pm0.08$	[2] AUBERT,B	06S	BABR	Repl. by DEL-AMO-SANCHEZ 12

[1] Uses the values of D and D^* branching fractions from PDG 08.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D_s^-\overline{\Lambda}p)/\Gamma_{\text{total}}$ Γ_{490}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.8±0.8±0.3	[1,2] MEDVEDEVA	07	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] MEDVEDEVA 07 reports $(2.9\pm0.7\pm0.5\pm0.4)\times10^{-5}$ from a measurement of $[\Gamma(B^0 \to D_s^-\overline{\Lambda}p)/\Gamma_{\text{total}}] \times [B(D_s^+ \to \phi\pi^+)]$ assuming $B(D_s^+ \to \phi\pi^+) = (4.4\pm0.6)\times10^{-2}$, which we rescale to our best value $B(D_s^+ \to \phi\pi^+) = (4.5\pm0.4)\times10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\overline{D}^*(2007)^0 p\overline{p})/\Gamma_{\text{total}}$ Γ_{491}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*	*TECN*	*COMMENT*
0.99 ± 0.11 OUR AVERAGE			
$0.97 \pm 0.07 \pm 0.09$	[1,2] DEL-AMO-SA..12	BABR	$e^+e^- \to \Upsilon(4S)$
$1.20^{+0.33}_{-0.29} \pm 0.21$	[2] ABE 02W	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$1.01 \pm 0.10 \pm 0.09$	[2] AUBERT,B 06S	BABR	Repl. by DEL-AMO-SANCHEZ 12

[1] Uses the values of D and D^* branching fractions from PDG 08.
[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^*(2010)^- p\overline{n})/\Gamma_{\text{total}}$ Γ_{492}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*	*TECN*	*COMMENT*
$14.5^{+3.4}_{-3.0} \pm 2.7$	[1] ANDERSON 01	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^- p\overline{p}\pi^+)/\Gamma_{\text{total}}$ Γ_{493}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*	*TECN*	*COMMENT*
$3.32 \pm 0.10 \pm 0.29$	[1,2] DEL-AMO-SA..12	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$3.38 \pm 0.14 \pm 0.29$	[2] AUBERT,B 06S	BABR	Repl. by DEL-AMO-SANCHEZ 12

[1] Uses the values of D and D^* branching fractions from PDG 08.
[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(D^*(2010)^- p\overline{p}\pi^+)/\Gamma_{\text{total}}$ Γ_{494}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*	*TECN*	*COMMENT*
4.7 ± 0.5 OUR AVERAGE Error includes scale factor of 1.2.			
$4.55 \pm 0.16 \pm 0.39$	[1,2] DEL-AMO-SA..12	BABR	$e^+e^- \to \Upsilon(4S)$
$6.5\ ^{+1.3}_{-1.2} \pm 1.0$	[2] ANDERSON 01	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$4.81 \pm 0.22 \pm 0.44$	[2] AUBERT,B 06S	BABR	Repl. by DEL-AMO-SANCHEZ 12

[1] Uses the values of D and D^* branching fractions from PDG 08.
[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{D}^0 p\overline{p}\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{495}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*	*TECN*	*COMMENT*
$2.99 \pm 0.21 \pm 0.45$	[1,2] DEL-AMO-SA..12	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses the values of D and D^* branching fractions from PDG 08.
[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{D}^{*0} p\overline{p}\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{496}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*	*TECN*	*COMMENT*
$1.91 \pm 0.36 \pm 0.29$	[1,2] DEL-AMO-SA..12	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses the values of D and D^* branching fractions from PDG 08.
[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\Theta_c \overline{p} \pi^+,\ \Theta_c \to D^- p)/\Gamma_{\text{total}}$ Γ_{497}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<9	90	[1] AUBERT,B 06S	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\Theta_c \overline{p} \pi^+,\ \Theta_c \to D^{*-} p)/\Gamma_{\text{total}}$ Γ_{498}/Γ

VALUE (units 10^{-6})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<14	90	[1] AUBERT,B 06S	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

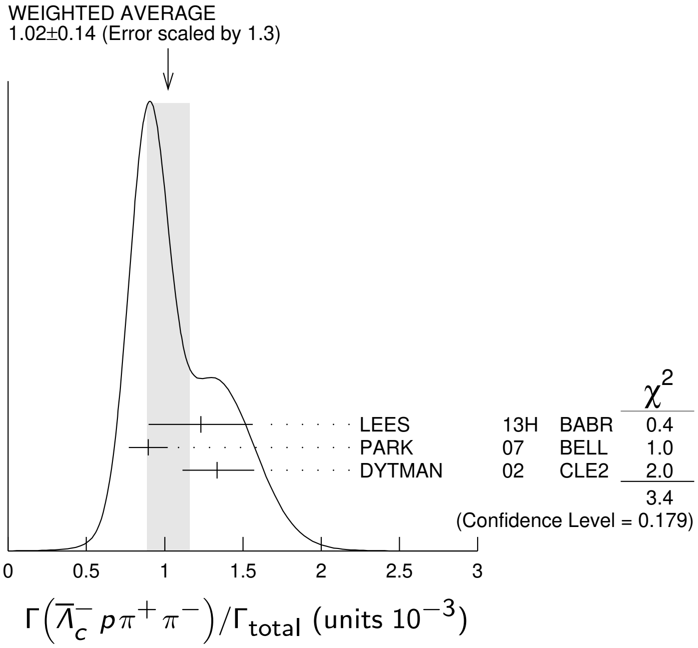
$\Gamma(\overline{\Sigma}_c^{--} \Delta^{++})/\Gamma_{\text{total}}$ Γ_{499}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<8 \times 10^{-4}$	90	[1] PROCARIO 94	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] PROCARIO 94 reports < 0.0012 from a measurement of $[\Gamma(B^0 \to \overline{\Sigma}_c^{--} \Delta^{++})/\Gamma_{\text{total}}] \times [\text{B}(\Lambda_c^+ \to p K^- \pi^+)]$ assuming $\text{B}(\Lambda_c^+ \to p K^- \pi^+) = 0.043$, which we rescale to our best value $\text{B}(\Lambda_c^+ \to p K^- \pi^+) = 6.26 \times 10^{-2}$.

$\Gamma(\overline{\Lambda}_c^- p \pi^+ \pi^-)/\Gamma_{\text{total}}$ Γ_{500}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*	*TECN*	*COMMENT*
1.02±0.14 OUR AVERAGE	Error includes scale factor of 1.3. See the ideogram below.		
$1.23 \pm 0.05 \pm 0.33$	[1,2] LEES 13H	BABR	$e^+ e^- \to \Upsilon(4S)$
$0.90 \pm 0.11 \pm 0.04$	[1,3] PARK 07	BELL	$e^+ e^- \to \Upsilon(4S)$
$1.33^{+0.22}_{-0.20} \pm 0.06$	[4] DYTMAN 02	CLE2	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.88 \pm 0.16 \pm 0.04$	[5] GABYSHEV 02	BELL	Repl. by PARK 07
$1.33^{+0.46}_{-0.42} \pm 0.37$	[6] FU 97	CLE2	Repl. by DYTMAN 02



[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses $\Lambda_c^+ \to pK^-\pi^+$ mode. The second error includes the uncertainty of the branching fraction of the Λ_c decay, B($\Lambda_c^+ \to pK^-\pi^+$) = (5.0 ± 1.3)%.

[3] PARK 07 reports (11.2 ± 0.5 ± 3.2) × 10^{-4} from a measurement of [$\Gamma(B^0 \to \overline{\Lambda}_c^- p\pi^+\pi^-)/\Gamma_{\text{total}}$] × [B($\Lambda_c^+ \to pK^-\pi^+$)] assuming B($\Lambda_c^+ \to pK^-\pi^+$) = (5.0 ± 1.3) × 10^{-2}, which we rescale to our best value B($\Lambda_c^+ \to pK^-\pi^+$) = (6.26 ± 0.29) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] DYTMAN 02 reports $(1.67^{+0.27}_{-0.25}) \times 10^{-3}$ from a measurement of [$\Gamma(B^0 \to \overline{\Lambda}_c^- p\pi^+\pi^-)/\Gamma_{\text{total}}$] × [B($\Lambda_c^+ \to pK^-\pi^+$)] assuming B($\Lambda_c^+ \to pK^-\pi^+$) = 0.05, which we rescale to our best value B($\Lambda_c^+ \to pK^-\pi^+$) = (6.26 ± 0.29) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[5] GABYSHEV 02 reports (1.1 ± 0.2) × 10^{-3} from a measurement of [$\Gamma(B^0 \to \overline{\Lambda}_c^- p\pi^+\pi^-)/\Gamma_{\text{total}}$] × [B($\Lambda_c^+ \to pK^-\pi^+$)] assuming B($\Lambda_c^+ \to pK^-\pi^+$) = 0.05, which we rescale to our best value B($\Lambda_c^+ \to pK^-\pi^+$) = (6.26 ± 0.29) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[6] FU 97 uses PDG 96 values of Λ_c branching fraction.

$\Gamma(\overline{\Lambda}_c^- p)/\Gamma_{\text{total}}$ $\qquad\Gamma_{501}/\Gamma$

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.54±0.18 OUR AVERAGE					
1.51±0.17±0.07		[1,2] AUBERT	08BN	BABR	$e^+e^- \to \Upsilon(4S)$
$2.19^{+0.56}_{-0.49}\pm0.65$		[1,3] GABYSHEV	03	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$2.10^{+0.67}_{-0.55}{}^{+0.77}_{-0.46}$		[1,4] AUBERT	07AV	BABR	Repl. by AUBERT 08BN
< 9	90	[1,5] DYTMAN	02	CLE2	$e^+e^- \to \Upsilon(4S)$
< 3.1	90	[1,4] GABYSHEV	02	BELL	$e^+e^- \to \Upsilon(4S)$
<21	90	[6] FU	97	CLE2	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] AUBERT 08BN reports (1.89 ± 0.21 ± 0.49) × 10^{-5} from a measurement of [$\Gamma(B^0 \to \overline{\Lambda}_c^- p)/\Gamma_{\text{total}}$] × [B($\Lambda_c^+ \to pK^-\pi^+$)] assuming B($\Lambda_c^+ \to pK^-\pi^+$) = (5.0 ± 1.3) × 10^{-2}, which we rescale to our best value B($\Lambda_c^+ \to pK^-\pi^+$) = (6.26 ± 0.29) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] The second error for GABYSHEV 03 includes the systematic and the error of $\Lambda_c \to \overline{p}K^+\pi^-$ decay branching fraction.

[4] Uses the value for $\Lambda_c \to pK^-\pi^+$ branching ratio (5.0 ± 1.3)%.

[5] DYTMAN 02 measurement uses B($\Lambda_c^- \to \overline{p}K^+\pi^-$) = 5.0 ± 1.3%. The second error includes the systematic and the uncertainty of the branching ratio.

[6] FU 97 uses PDG 96 values of Λ_c branching ratio.

$\Gamma(\overline{\Lambda}_c^- p\pi^0)/\Gamma_{total}$ Γ_{502}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
1.55±0.17±0.07		[1,2] AUBERT 10H	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<5.9	90	[3] FU 97	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[1] AUBERT 10H reports $(1.94 \pm 0.17 \pm 0.52) \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \rightarrow \overline{\Lambda}_c^- p\pi^0)/\Gamma_{total}] \times [B(\Lambda_c^+ \rightarrow pK^-\pi^+)]$ assuming $B(\Lambda_c^+ \rightarrow pK^-\pi^+) = (5.0 \pm 1.3) \times 10^{-2}$, which we rescale to our best value $B(\Lambda_c^+ \rightarrow pK^-\pi^+) = (6.26 \pm 0.29) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] FU 97 uses PDG 96 values of Λ_c branching ratio.

$\Gamma(\Lambda_c^- pK^+K^-)/\Gamma_{total}$ Γ_{515}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*	*TECN*	*COMMENT*
2.0±0.4±0.1	[1,2] LEES 15B	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

[1] LEES 15B reports $[\Gamma(B^0 \rightarrow \Lambda_c^- pK^+K^-)/\Gamma_{total}] \times [B(\Lambda_c^+ \rightarrow pK^-\pi^+)] = (12.5 \pm 2.0 \pm 1.0) \times 10^{-7}$ which we divide by our best value $B(\Lambda_c^+ \rightarrow pK^-\pi^+) = (6.26 \pm 0.29) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\Lambda_c^- p\phi)/\Gamma_{total}$ Γ_{516}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
<1.0 × 10				

[1] LEES 15B reports $< 1.2 \times 10^{-5}$ from a measurement of $[\Gamma(B^0 \rightarrow \Lambda_c^- p\phi)/\Gamma_{total}] \times [B(\Lambda_c^+ \rightarrow pK^-\pi^+)]$ assuming $B(\Lambda_c^+ \rightarrow pK^-\pi^+) = (5.0 \pm 1.3) \times 10^{-2}$, which we rescale to our best value $B(\Lambda_c^+ \rightarrow pK^-\pi^+) = 6.26 \times 10^{-2}$.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\Sigma_c(2455)^- p)/\Gamma_{total}$ Γ_{503}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*	*TECN*	*COMMENT*
<24	[1,2] AUBERT 10H	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

[1] AUBERT 10H reports $[\Gamma(B^0 \rightarrow \Sigma_c(2455)^- p)/\Gamma_{total}] \times [B(\Lambda_c^+ \rightarrow pK^-\pi^+)] < 1.5 \times 10^{-6}$ which we divide by our best value $B(\Lambda_c^+ \rightarrow pK^-\pi^+) = 6.26 \times 10^{-2}$.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{\Lambda}_c^- p\pi^+\pi^-\pi^0)/\Gamma_{total}$ Γ_{504}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<5.07 \times 10^{-3}$	90	[1] FU 97	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[1] FU 97 uses PDG 96 values of Λ_c branching ratio.

$\Gamma(\overline{\Lambda}_c^- p \pi^+ \pi^- \pi^+ \pi^-)/\Gamma_{\text{total}}$ Γ_{505}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<2.74 \times 10^{-3}$	90	[1] FU	97	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] FU 97 uses PDG 96 values of Λ_c branching ratio.

$\Gamma(\overline{\Lambda}_c^- p \pi^+ \pi^- (\text{nonresonant}))/\Gamma_{\text{total}}$ Γ_{506}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
5.5±1.0 OUR AVERAGE Error includes scale factor of 1.3.				
7.9±0.4±2.0	[1,2] LEES	13H	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
5.1±0.8±0.2	[1,3] PARK	07	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses $\Lambda_c^+ \rightarrow p K^- \pi^+$ mode. The second error includes the uncertainty of the branching fraction of the Λ_c decay, $\text{B}(\Lambda_c^+ \rightarrow p K^- \pi^+) = (5.0 \pm 1.3)\%$.

[3] PARK 07 reports $(6.4 \pm 0.4 \pm 1.9) \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \rightarrow \overline{\Lambda}_c^- p \pi^+ \pi^- (\text{nonresonant}))/\Gamma_{\text{total}}] \times [\text{B}(\Lambda_c^+ \rightarrow p K^- \pi^+)]$ assuming $\text{B}(\Lambda_c^+ \rightarrow p K^- \pi^+) = (5.0 \pm 1.3) \times 10^{-2}$, which we rescale to our best value $\text{B}(\Lambda_c^+ \rightarrow p K^- \pi^+) = (6.26 \pm 0.29) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\overline{\Sigma}_c(2520)^{--} p \pi^+)/\Gamma_{\text{total}}$ Γ_{507}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.02±0.18 OUR AVERAGE				
1.15±0.10±0.30	[1,2] LEES	13H	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
0.96±0.22±0.04	[1,3] PARK	07	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.3 ±0.5 ±0.1	[4] GABYSHEV	02	BELL	Repl. by PARK 07

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses $\Lambda_c^+ \rightarrow p K^- \pi^+$ mode. The second error includes the uncertainty of the branching fraction of the Λ_c decay, $\text{B}(\Lambda_c^+ \rightarrow p K^- \pi^+) = (5.0 \pm 1.3)\%$.

[3] PARK 07 reports $(1.2 \pm 0.1 \pm 0.4) \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \rightarrow \overline{\Sigma}_c(2520)^{--} p \pi^+)/\Gamma_{\text{total}}] \times [\text{B}(\Lambda_c^+ \rightarrow p K^- \pi^+)]$ assuming $\text{B}(\Lambda_c^+ \rightarrow p K^- \pi^+) = (5.0 \pm 1.3) \times 10^{-2}$, which we rescale to our best value $\text{B}(\Lambda_c^+ \rightarrow p K^- \pi^+) = (6.26 \pm 0.29) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] GABYSHEV 02 reports $(1.63^{+0.64}_{-0.58}) \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \rightarrow \overline{\Sigma}_c(2520)^{--} p \pi^+)/\Gamma_{\text{total}}] \times [\text{B}(\Lambda_c^+ \rightarrow p K^- \pi^+)]$ assuming $\text{B}(\Lambda_c^+ \rightarrow p K^- \pi^+) = 0.05$, which we rescale to our best value $\text{B}(\Lambda_c^+ \rightarrow p K^- \pi^+) = (6.26 \pm 0.29) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\overline{\Sigma}_c(2520)^0 p \pi^-)/\Gamma_{\text{total}}$ Γ_{508}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<0.31 \times 10^{-4}$	90	[1,2] LEES	13H	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<0.38 \times 10^{-4}$	90	[1] PARK	07	BELL	$e^+e^- \to \Upsilon(4S)$
$<1.21 \times 10^{-4}$	90	[1,2] GABYSHEV	02	BELL	Repl. by PARK 07

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses the value for $\Lambda_c \to pK^-\pi^+$ branching ratio (5.0 ± 1.3)%.

$\Gamma(\overline{\Sigma}_c(2455)^0 N^0,\ N^0 \to p\pi^-)/\Gamma_{\text{total}}$ Γ_{510}/Γ

N^0 is the $N(1440)$ P_{11} or $N(1535)$ S_{11} or an admixture of the two baryonic states.

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
0.64±0.16±0.03	[1,2] KIM	08	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] KIM 08 reports $(0.80 \pm 0.15 \pm 0.25) \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \to \overline{\Sigma}_c(2455)^0 N^0,\ N^0 \to p\pi^-)/\Gamma_{\text{total}}] \times [B(\Lambda_c^+ \to pK^-\pi^+)]$ assuming $B(\Lambda_c^+ \to pK^-\pi^+) = (5.0 \pm 1.3) \times 10^{-2}$, which we rescale to our best value $B(\Lambda_c^+ \to pK^-\pi^+) = (6.26 \pm 0.29) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\overline{\Sigma}_c(2455)^0 p\pi^-)/\Gamma_{\text{total}}$ Γ_{509}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.08±0.16 OUR AVERAGE					
0.91±0.07±0.24		[1,2] LEES	13H	BABR	$e^+e^- \to \Upsilon(4S)$
1.12±0.21±0.05		[1,3] PARK	07	BELL	$e^+e^- \to \Upsilon(4S)$
1.8 ±0.6 ±0.1		[4] DYTMAN	02	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.38^{+0.37}_{-0.33} \pm 0.02$	90	[5] GABYSHEV	02	BELL	Repl. by PARK 07

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses $\Lambda_c^+ \to pK^-\pi^+$ mode. The second error includes the uncertainty of the branching fraction of the Λ_c decay, $B(\Lambda_c^+ \to pK^-\pi^+) = (5.0 \pm 1.3)\%$.

[3] PARK 07 reports $(1.4 \pm 0.2 \pm 0.4) \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \to \overline{\Sigma}_c(2455)^0 p\pi^-)/\Gamma_{\text{total}}] \times [B(\Lambda_c^+ \to pK^-\pi^+)]$ assuming $B(\Lambda_c^+ \to pK^-\pi^+) = (5.0 \pm 1.3) \times 10^{-2}$, which we rescale to our best value $B(\Lambda_c^+ \to pK^-\pi^+) = (6.26 \pm 0.29) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] DYTMAN 02 reports $(2.2 \pm 0.7) \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \to \overline{\Sigma}_c(2455)^0 p\pi^-)/\Gamma_{\text{total}}] \times [B(\Lambda_c^+ \to pK^-\pi^+)]$ assuming $B(\Lambda_c^+ \to pK^-\pi^+) = 0.05$, which we rescale to our best value $B(\Lambda_c^+ \to pK^-\pi^+) = (6.26 \pm 0.29) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[5] GABYSHEV 02 reports $(0.48^{+0.46}_{-0.41}) \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \to \overline{\Sigma}_c(2455)^0 p\pi^-)/\Gamma_{\text{total}}] \times [B(\Lambda_c^+ \to pK^-\pi^+)]$ assuming $B(\Lambda_c^+ \to pK^-\pi^+) = 0.05$, which we rescale to our best value $B(\Lambda_c^+ \to pK^-\pi^+) = (6.26 \pm 0.29) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\overline{\Sigma}_c(2455)^{--} p\pi^+)/\Gamma_{\text{total}}$ Γ_{511}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.84±0.24 OUR AVERAGE				
2.13±0.10±0.56	[1,2] LEES	13H	BABR	$e^+e^- \to \Upsilon(4S)$
1.68±0.26±0.08	[1,3] PARK	07	BELL	$e^+e^- \to \Upsilon(4S)$
3.0 ±0.9 ±0.1	[4] DYTMAN	02	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.9 ±0.6 ±0.1	[5] GABYSHEV	02	BELL	Repl. by PARK 07

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Uses $\Lambda_c^+ \to pK^-\pi^+$ mode. The second error includes the uncertainty of the branching fraction of the Λ_c decay, $B(\Lambda_c^+ \to pK^-\pi^+) = (5.0 \pm 1.3)\%$.

[3] PARK 07 reports $(2.1 \pm 0.2 \pm 0.6) \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \to \overline{\Sigma}_c(2455)^{--} p\pi^+)/\Gamma_{\text{total}}] \times [B(\Lambda_c^+ \to pK^-\pi^+)]$ assuming $B(\Lambda_c^+ \to pK^-\pi^+) = (5.0 \pm 1.3) \times 10^{-2}$, which we rescale to our best value $B(\Lambda_c^+ \to pK^-\pi^+) = (6.26 \pm 0.29) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[4] DYTMAN 02 reports $(3.7 \pm 1.1) \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \to \overline{\Sigma}_c(2455)^{--} p\pi^+)/\Gamma_{\text{total}}] \times [B(\Lambda_c^+ \to pK^-\pi^+)]$ assuming $B(\Lambda_c^+ \to pK^-\pi^+) = 0.05$, which we rescale to our best value $B(\Lambda_c^+ \to pK^-\pi^+) = (6.26 \pm 0.29) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[5] GABYSHEV 02 reports $(2.38^{+0.75}_{-0.69}) \times 10^{-4}$ from a measurement of $[\Gamma(B^0 \to \overline{\Sigma}_c(2455)^{--} p\pi^+)/\Gamma_{\text{total}}] \times [B(\Lambda_c^+ \to pK^-\pi^+)]$ assuming $B(\Lambda_c^+ \to pK^-\pi^+) = 0.05$, which we rescale to our best value $B(\Lambda_c^+ \to pK^-\pi^+) = (6.26 \pm 0.29) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\Lambda_c^- pK^+\pi^-)/\Gamma_{\text{total}}$ Γ_{512}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
3.5±0.7±0.2	[1,2] AUBERT	09AG	BABR	$e^+e^- \to \Upsilon(4S)$

[1] AUBERT 09AG reports $(4.33 \pm 0.82 \pm 0.33 \pm 1.13) \times 10^{-5}$ from a measurement of $[\Gamma(B^0 \to \Lambda_c^- pK^+\pi^-)/\Gamma_{\text{total}}] \times [B(\Lambda_c^+ \to pK^-\pi^+)]$ assuming $B(\Lambda_c^+ \to pK^-\pi^+) = (5.0 \pm 1.3) \times 10^{-2}$, which we rescale to our best value $B(\Lambda_c^+ \to pK^-\pi^+) = (6.26 \pm 0.29) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{\Sigma}_c(2455)^{--} pK^+,\ \overline{\Sigma}_c^{--} \to \overline{\Lambda}_c^- \pi^-)/\Gamma_{\text{total}}$ Γ_{513}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
0.89±0.25±0.04	[1,2] AUBERT	09AG	BABR	$e^+e^- \to \Upsilon(4S)$

[1] AUBERT 09AG reports $(1.11 \pm 0.30 \pm 0.09 \pm 0.29) \times 10^{-5}$ from a measurement of $[\Gamma(B^0 \to \overline{\Sigma}_c(2455)^{--} pK^+,\ \overline{\Sigma}_c^{--} \to \overline{\Lambda}_c^- \pi^-)/\Gamma_{\text{total}}] \times [B(\Lambda_c^+ \to pK^-\pi^+)]$ assuming $B(\Lambda_c^+ \to pK^-\pi^+) = (5.0 \pm 1.3) \times 10^{-2}$, which we rescale to our best value $B(\Lambda_c^+ \to pK^-\pi^+) = (6.26 \pm 0.29) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\Lambda_c^- p K^*(892)^0)/\Gamma_{\rm total}$ Γ_{514}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<2.42	90	[1] AUBERT	09AG	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\Lambda_c^- p \overline{p} p)/\Gamma_{\rm total}$ Γ_{517}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
<2.8	[1] LEES	14C	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and B($\Lambda_c^+ \to p K^- \pi^+$) = 0.050 ± 0.013.

$\Gamma(\overline{\Lambda}_c^- \Lambda K^+)/\Gamma_{\rm total}$ Γ_{518}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
4.8±1.1±0.2	[1,2] LEES	11F	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^0 and B^+ from Upsilon(4S) decays.

[2] LEES 11F reports (3.8 ± 0.8 ± 0.2 ± 1.0) × 10^{-5} from a measurement of [$\Gamma(B^0 \to \overline{\Lambda}_c^- \Lambda K^+)/\Gamma_{\rm total}$] / [B($\Lambda_c^+ \to p K^- \pi^+$)] / [B($\Lambda \to p \pi^-$)] assuming B($\Lambda_c^+ \to p K^- \pi^+$) = (5.0 ± 1.3) × 10^{-2},B($\Lambda \to p \pi^-$) = (63.9 ± 0.5) × 10^{-2}, which we rescale to our best values B($\Lambda_c^+ \to p K^- \pi^+$) = (6.26 ± 0.29) × 10^{-2}, B($\Lambda \to p \pi^-$) = (64.1 ± 0.5) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best values. The reported uncertainties are statistical, systematic, and $\overline{\Lambda}_c^-$ branching fraction uncertainty.

$\Gamma(\overline{\Lambda}_c^- \Lambda_c^+)/\Gamma_{\rm total}$ Γ_{519}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.6	95	[1] AAIJ	14AA	LHCB	pp at 7 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<6.2	90	[2] UCHIDA	08	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Uses B($\overline{B}^0 \to D^+ D_s^-$) = (7.2 ± 0.8) × 10^{-3}.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\overline{\Lambda}_c(2593)^- \,/\, \overline{\Lambda}_c(2625)^- p)/\Gamma_{\rm total}$ Γ_{520}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.1 × 10^{-4}	90	[1,2] DYTMAN	02	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] DYTMAN 02 measurement uses B($\Lambda_c^- \to \overline{p} K^+ \pi^-$) = 5.0 ± 1.3%. The second error includes the systematic and the uncertainty of the branching ratio.

$\Gamma(\overline{\Xi}_c^- \Lambda_c^+)/\Gamma_{\rm total}$ Γ_{521}/Γ

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.2±0.8±0.1	[1,2] LI	19C	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Uses fully reconstructed B^0 on tag side with recoil against Λ_c^+.

[2] LI 19C reports (1.16 ± 0.74 ± 0.33) × 10^{-3} from a measurement of [$\Gamma(B^0 \to \overline{\Xi}_c^- \Lambda_c^+)/\Gamma_{\rm total}$] × [B($\Lambda_c^+ \to p K^- \pi^+$)] assuming B($\Lambda_c^+ \to p K^- \pi^+$) = (6.28 ± 0.32) × 10^{-2},

which we rescale to our best value B($\Lambda_c^+ \to pK^-\pi^+$) = (6.26 ± 0.29) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\Xi_c^-\Lambda_c^+,\ \Xi_c^- \to \Xi^+\pi^-\pi^-)/\Gamma_{\text{total}}$ Γ_{522}/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.4±1.1 OUR AVERAGE	Error includes scale factor of 1.8.			
3.3±0.8±0.2	[1] LI	19C	BELL	$e^+e^- \to \Upsilon(4S)$
1.2±0.9±0.1	[2,3] AUBERT	08H	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$7.4^{+3.3}_{-2.7}\pm0.3$	[3,4] CHISTOV	06A	BELL	Repl. by LI 19C

[1] LI 19C reports (3.32 ± 0.74 ± 0.33) × 10^{-5} from a measurement of [$\Gamma(B^0 \to \Xi_c^-\Lambda_c^+,\ \Xi_c^- \to \Xi^+\pi^-\pi^-)/\Gamma_{\text{total}}$] × [B($\Lambda_c^+ \to pK^-\pi^+$)] assuming B($\Lambda_c^+ \to pK^-\pi^+$) = (6.28 ± 0.32) × 10^{-2}, which we rescale to our best value B($\Lambda_c^+ \to pK^-\pi^+$) = (6.26 ± 0.29) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[2] AUBERT 08H reports (1.5 ± 1.07 ± 0.44) × 10^{-5} from a measurement of [$\Gamma(B^0 \to \Xi_c^-\Lambda_c^+,\ \Xi_c^- \to \Xi^+\pi^-\pi^-)/\Gamma_{\text{total}}$] × [B($\Lambda_c^+ \to pK^-\pi^+$)] assuming B($\Lambda_c^+ \to pK^-\pi^+$) = (5.0 ± 1.3) × 10^{-2}, which we rescale to our best value B($\Lambda_c^+ \to pK^-\pi^+$) = (6.26 ± 0.29) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[4] CHISTOV 06A reports $(9.3^{+3.7}_{-2.8}\pm3.1)\times10^{-5}$ from a measurement of [$\Gamma(B^0 \to \Xi_c^-\Lambda_c^+,\ \Xi_c^- \to \Xi^+\pi^-\pi^-)/\Gamma_{\text{total}}$] × [B($\Lambda_c^+ \to pK^-\pi^+$)] assuming B($\Lambda_c^+ \to pK^-\pi^+$) = (5.0 ± 1.3) × 10^{-2}, which we rescale to our best value B($\Lambda_c^+ \to pK^-\pi^+$) = (6.26 ± 0.29) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\Xi_c^-\Lambda_c^+,\ \Xi_c^- \to \overline{p}K^+\pi^-)/\Gamma_{\text{total}}$ Γ_{523}/Γ

VALUE (units 10^{-6})	*DOCUMENT ID*		*TECN*	*COMMENT*
5.3±1.6±0.2	[1] LI	19C	BELL	$e^+e^- \to \Upsilon(4S)$

[1] LI 19C reports (5.27 ± 1.51 ± 0.69) × 10^{-6} from a measurement of [$\Gamma(B^0 \to \Xi_c^-\Lambda_c^+,\ \Xi_c^- \to \overline{p}K^+\pi^-)/\Gamma_{\text{total}}$] × [B($\Lambda_c^+ \to pK^-\pi^+$)] assuming B($\Lambda_c^+ \to pK^-\pi^+$) = (6.28 ± 0.32) × 10^{-2}, which we rescale to our best value B($\Lambda_c^+ \to pK^-\pi^+$) = (6.26 ± 0.29) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(\Lambda_c^+\Lambda_c^-K^0)/\Gamma_{\text{total}}$ Γ_{524}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
4.0 ±0.9 OUR AVERAGE				
3.99±0.76±0.51	[1] LI	18D	BELL	$e^+e^- \to \Upsilon(4S)$
3.8 ±3.1 ±2.1	[2,3] AUBERT	08H	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$7.9\ ^{+2.9}_{-2.3}\ \pm 4.3$	[2,3] GABYSHEV	06	BELL	Repl. by LI 18D

[1] Assumes B($\Upsilon(4S) \rightarrow B^0 \overline{B}^0$) = 48.6 ± 0.6% and B($\Lambda_c^+ \rightarrow pK^- \pi^+$) = 6.23 ± 0.33%.

[2] Assumes B($\Lambda_c^+ \rightarrow pK^- \pi^+$) = 5.0 ± 1.3%.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\Xi_c(2930)^- \Lambda_c^+,\ \Xi_c^- \rightarrow \Lambda_c^- K^0)/\Gamma_{\text{total}}$ Γ_{525}/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.37±0.51±0.31	[1] LI	18D	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] Assumes B($\Upsilon(4S) \rightarrow B^0 \overline{B}^0$) = 48.6 ± 0.6% and B($\Lambda_c^+ \rightarrow pK^- \pi^+$) = 6.23 ± 0.33%.

$\Gamma(\Lambda \psi_{DS})/\Gamma_{\text{total}}$ Γ_{526}/Γ

Here ψ_{DS} is a GeV-scale dark sector antibaryon (mass range 1–3.9 GeV/c^2).

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<2.1 × 10^{-5}	90	[1] HADJIVASILIOU	22	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] HADJIVASILIOU 22 searched for ψ_{DS} in the recoil mass against Λ and the accompanying B meson; the cited upper limit is for m(ψ_{DS}) = 2.0 GeV/c^2 and is the most stringent; the least stringent limit is $< 3.8 \times 10^{-5}$ at m(ψ_{DS}) = 3.9 GeV/c^2.

$\Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ Γ_{527}/Γ

Test for ΔB=1 weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<3.2 × 10^{-7}	90	[1] DEL-AMO-SA..	11A	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<6.2 \times 10^{-7}$	90	[1] VILLA	06	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
$<1.7 \times 10^{-6}$	90	[1] AUBERT	01I	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
$<3.9 \times 10^{-5}$	90	[2] ACCIARRI	95I	L3	$e^+ e^- \rightarrow Z$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] ACCIARRI 95I assumes f_{B^0} = 39.5 ± 4.0 and f_{B_s} = 12.0 ± 3.0%.

$\Gamma(e^+ e^-)/\Gamma_{\text{total}}$ Γ_{528}/Γ

Test for ΔB=1 weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
< 2.5 × 10^{-9}	90	[1] AAIJ	20W	LHCB	pp at 7, 8, 13 TeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

$< 8.3 \times 10^{-8}$	90	AALTONEN	09P	CDF	$p\overline{p}$ at 1.96 TeV
$<11.3 \times 10^{-8}$	90	[2] AUBERT	08P	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
$< 6.1 \times 10^{-8}$	90	[2] AUBERT	05W	BABR	Repl. by AUBERT 08P
$< 1.9 \times 10^{-7}$	90	[2] CHANG	03	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
$< 8.3 \times 10^{-7}$	90	[2] BERGFELD	00B	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
$< 1.4 \times 10^{-5}$	90	[3] ACCIARRI	97B	L3	$e^+ e^- \rightarrow Z$
$< 5.9 \times 10^{-6}$	90	AMMAR	94	CLE2	Repl. by BERGFELD 00B
$< 2.6 \times 10^{-5}$	90	[4] AVERY	89B	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$
$< 7.6 \times 10^{-5}$	90	[5] ALBRECHT	87D	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

$< 6.4 \times 10^{-5}$	90	[6] AVERY 87	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
$< 3 \times 10^{-4}$	90	GILES 84	CLEO	Repl. by AVERY 87

[1] Assumes no contribution from $B^0_s \rightarrow e^+e^-$ decays.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] ACCIARRI 97B assume PDG 96 production fractions for B^+, B^0, B_s, and Λ_b.

[4] AVERY 89B reports $< 3 \times 10^{-5}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

[5] ALBRECHT 87D reports $< 8.5 \times 10^{-5}$ assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

[6] AVERY 87 reports $< 8 \times 10^{-5}$ assuming the $\Upsilon(4S)$ decays 40% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(e^+e^-\gamma)/\Gamma_{\text{total}}$ Γ_{529}/Γ

Test for ΔB=1 weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<1.2 \times 10^{-7}$	90	AUBERT 08C	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

$\Gamma(\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{530}/Γ

Test for ΔB=1 weak neutral current. Allowed by higher-order electroweak interactions.

VALUE (units 10^{-9})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.07^{+0.13}_{-0.11}$ OUR AVERAGE		Error includes scale factor of 1.8.		
$0.12^{+0.08}_{-0.07} \pm 0.01$		[1] AAIJ 22	LHCB	pp at 7, 8, 13 TeV
-0.19 ± 0.16		[2,3] AABOUD 19L	ATLS	pp at 7, 8, 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
< 0.36	95	[4] SIRUNYAN 20AG		pp at 7, 8, 13 TeV
$0.15^{+0.12}_{-0.10}{}^{+0.02}_{-0.01}$		[5] AAIJ 17AI	LHCB	Repl. by AAIJ 22
-0.25 ± 0.20		[6] AABOUD 16L	ATLS	Repl. by AABOUD 19L
$0.39^{+0.16}_{-0.14}$		[7] KHACHATRY... 15BE	LHC	pp at 7, 8 TeV
< 0.80	90	[8] AAIJ 13B	LHCB	Repl. by AAIJ 13BA
< 0.63	90	[9] AAIJ 13BA	LHCB	Repl. by KHACHATRYAN 15BE
< 3.8	90	[10] AALTONEN 13F	CDF	$p\overline{p}$ at 1.96 TeV
$0.35^{+0.21}_{-0.18}$		[11] CHATRCHYAN 13AW	CMS	Repl. by SIRUNYAN 20AG
< 2.6	90	[8] AAIJ 12A	LHCB	Repl. by AAIJ 12W
< 0.81	90	[12] AAIJ 12W	LHCB	Repl. by AAIJ 13B
< 1.4	90	[12] CHATRCHYAN 12A	CMS	pp at 7 TeV
< 12	90	[13] AAIJ 11B	LHCB	Repl. by AAIJ 12A
< 5.0	90	[12] AALTONEN 11AG	CDF	$p\overline{p}$ at 1.96 TeV
< 3.7	90	[12] CHATRCHYAN 11T	CMS	Repl. by CHATRCHYAN 12A

[1] Corresponds to a 95% CL upper limit of $< 2.6 \times 10^{-10}$.

[2] Corresponds to a 95% CL upper limit of $< 2.1 \times 10^{-10}$.

[3] Uses normalization mode $B(B^+ \rightarrow J/\psi K^+) = (1.010 \pm 0.029) \times 10^{-3}$ and B production ratio $f(b \rightarrow B^0_s)/f(b \rightarrow B^0) = 0.256 \pm 0.013$.

[4] Uses normalization mode $B(B^+ \rightarrow J/\psi K^+) = (1.01 \pm 0.03) \times 10^{-3}$.

[5] Corresponds to a 95% CL upper limit of $< 3.4 \times 10^{-10}$.

[6] This value is obtained from a profile-likelihood fit, see Fig. 9. It corresponds to an uppper limit of $< 0.42 \times 10^{-9}$ at 95% C.L.

[7] Derived from the combined fit to CMS and LHCb data. Uncertainty includes both statistical and systematic component. Also reports $B(B^0 \to \mu^+\mu^-)/B(B_s \to \mu^+\mu^-) = 0.14^{+0.08}_{-0.06}$.

[8] Uses $B(B^+ \to J/\psi K^+ \to \mu^+\mu^- K^+) = (6.01 \pm 0.21) \times 10^{-5}$ and $B(B^0 \to K^+\pi^-) = (1.94 \pm 0.06) \times 10^{-5}$ for normalization.

[9] Reports also a limit of $< 7.4 \times 10^{-10}$ at 95% CL. Uses normalization modes $B^+ \to J/\psi K^+ \to \mu^+\mu^- K^+$ and $B^0 \to K^+\pi^-$.

[10] Uses normalization mode $B(B^+ \to J/\psi K^+) = (10.22 \pm 0.35) \times 10^{-4}$.

[11] Reports also a limit of $< 9.2 \times 10^{-10}$ at 90% CL. and uses $B(B^+ \to J/\psi K^+ \to \mu^+\mu^- K^+) = (6.0 \pm 0.2) \times 10^{-5}$ for normalization.

[12] Uses $B(B^+ \to J/\psi K^+ \to \mu^+\mu^- K^+) = (6.01 \pm 0.21) \times 10^{-5}$.

[13] Uses B production ratio $f(\overline{b} \to B^+)/f(\overline{b} \to B^0_s) = 3.71 \pm 0.47$ and three normalization modes.

$\Gamma(\mu^+\mu^-\gamma)/\Gamma_{\text{total}}$ Γ_{531}/Γ

Test for ΔB=1 weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<1.6 \times 10^{-7}$	90	AUBERT 08C	BABR	$e^+e^- \to \Upsilon(4S)$

$\Gamma(\tau^+\tau^-)/\Gamma_{\text{total}}$ Γ_{535}/Γ

Test for ΔB=1 weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{<2.1 \times 10^{-3}}$	95	[1] AAIJ 17AJ	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$<4.1 \times 10^{-3}$	90	[2] AUBERT 06S	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assuming no contribution from $B^0_s \to \tau^+\tau^-$.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\mu^+\mu^-\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{532}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{<1.8 \times 10^{-10}}$	95	AAIJ 22Q	LHCB	pp at 7, 8, 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$<6.9 \times 10^{-10}$	95	AAIJ 17N	LHCB	pp at 7, 8 TeV
$<6.6 \times 10^{-9}$	95	[1] AAIJ 13AW	LHCB	Repl. by AAIJ 17N

[1] Also reports a limit of $< 5.3 \times 10^{-9}$ at 90% CL.

$\Gamma(SP,\ S \to \mu^+\mu^-,\ P \to \mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{533}/Γ

Here S and P are the hypothetical scalar and pseudoscalar particles with masses of 2.5 GeV/c^2 and 214.3 MeV/c^2, respectively.

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{<6.0 \times 10^{-10}}$	95	AAIJ 17N	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$<5.1 \times 10^{-9}$	90	[1] AAIJ 13AW	LHCB	Repl. by AAIJ 17N

[1] Also reports a limit of $< 6.3 \times 10^{-9}$ at 95% CL.

$\Gamma(aa,\ a \to \mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{534}/Γ

Here particle a is a scalar with a mass of 1 GeV/c^2.

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<2.3 \times 10^{-10}$	95	AAIJ 22Q	LHCB	pp at 7, 8, 13 TeV

$\Gamma(\pi^0 \ell^+ \ell^-)/\Gamma_{\text{total}}$ Γ_{536}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<5.3 \times 10^{-8}$	90	[1] LEES 13M	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<1.5 \times 10^{-7}$	90	[1] WEI 08A	BELL	$e^+e^- \to \Upsilon(4S)$
$<1.2 \times 10^{-7}$	90	[1] AUBERT 07AG	BABR	Repl. by LEES 13M

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\pi^0 \nu \overline{\nu})/\Gamma_{\text{total}}$ Γ_{542}/Γ

Test for $\Delta B = 1$ weak neutral current. Allowed by higher-order electroweak interaction.

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<0.9 \times 10^{-5}$	90	[1] GRYGIER 17	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<6.9 \times 10^{-5}$	90	[1] LUTZ 13	BELL	$e^+e^- \to \Upsilon(4S)$
$<2.2 \times 10^{-4}$	90	[1] CHEN 07D	BELL	Repl. by LUTZ 13

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\pi^0 e^+ e^-)/\Gamma_{\text{total}}$ Γ_{537}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<8.4 \times 10^{-8}$	90	[1] LEES 13M	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<2.3 \times 10^{-7}$	90	[1] WEI 08A	BELL	$e^+e^- \to \Upsilon(4S)$
$<1.4 \times 10^{-7}$	90	[1] AUBERT 07AG	BABR	Repl. by LEES 13M

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\pi^0 \mu^+ \mu^-)/\Gamma_{\text{total}}$ Γ_{538}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<6.9 \times 10^{-8}$	90	[1] LEES 13M	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<1.8 \times 10^{-7}$	90	[1] WEI 08A	BELL	$e^+e^- \to \Upsilon(4S)$
$<5.1 \times 10^{-7}$	90	[1] AUBERT 07AG	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta \ell^+ \ell^-)/\Gamma_{\text{total}}$ Γ_{539}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<6.4 \times 10^{-8}$	90	[1] LEES 13M	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta e^+ e^-)/\Gamma_{\text{total}}$ Γ_{540}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<10.8 \times 10^{-8}$	90	[1] LEES 13M	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\eta\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{541}/Γ

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$<11.2\times10^{-8}$	90	[1] LEES 13M	BABR	$e^+e^-\to\Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^0\ell^+\ell^-)/\Gamma_{\text{total}}$ Γ_{543}/Γ

VALUE (units 10^{-7})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
3.3 ±0.6 OUR AVERAGE				
$3.51^{+0.69}_{-0.60}\pm0.10$		CHOUDHURY 21	BELL	$e^+e^-\to\Upsilon(4S)$
$2.1^{+1.5}_{-1.3}\pm0.2$		[1] AUBERT 09T	BABR	$e^+e^-\to\Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE (units 10^{-7})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$3.4^{+0.9}_{-0.8}\pm0.2$		[1,2] WEI 09A	BELL	$e^+e^-\to\Upsilon(4S)$
$2.9^{+1.6}_{-1.3}\pm0.3$		[1] AUBERT,B 06J	BABR	Repl. by AUBERT 09T
<6.8	90	[1] ISHIKAWA 03	BELL	$e^+e^-\to\Upsilon(4S)$

[1] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$.

[2] Superseded by CHOUDHURY 21.

$\Gamma(K^0e^+e^-)/\Gamma_{\text{total}}$ Γ_{544}/Γ

Test for ΔB=1 weak neutral current. Allowed by higher-order electroweak interactions.

VALUE (units 10^{-7})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$2.5^{+1.1}_{-0.9}$ OUR AVERAGE		Error includes scale factor of 1.3.		
$3.1^{+1.0}_{-0.9}\pm0.08$		CHOUDHURY 21	BELL	$e^+e^-\to\Upsilon(4S)$
$0.8^{+1.5}_{-1.2}\pm0.1$		[1] AUBERT 09T	BABR	$e^+e^-\to\Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE (units 10^{-7})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$2.0^{+1.4}_{-1.0}\pm0.1$		[1,2] WEI 09A	BELL	$e^+e^-\to\Upsilon(4S)$
$1.3^{+1.6}_{-1.1}\pm0.2$		[1] AUBERT,B 06J	BABR	Repl. by AUBERT 09T
$-\ 2.1^{+2.3}_{-1.6}\pm0.8$		[1] AUBERT 03U	BABR	$e^+e^-\to\Upsilon(4S)$
<5.4	90	[3] ISHIKAWA 03	BELL	$e^+e^-\to\Upsilon(4S)$
<27	90	[1] ABE 02	BELL	Repl. by ISHIKAWA 03
<38	90	[1] AUBERT 02L	BABR	$e^+e^-\to\Upsilon(4S)$
<84.5	90	[4] ANDERSON 01B	CLE2	$e^+e^-\to\Upsilon(4S)$
<3000	90	ALBRECHT 91E	ARG	$e^+e^-\to\Upsilon(4S)$
<5200	90	[5] AVERY 87	CLEO	$e^+e^-\to\Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Superseded by CHOUDHURY 21.

[3] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$.

[4] The result is for di-lepton masses above 0.5 GeV.

[5] AVERY 87 reports $<6.5\times10^{-4}$ assuming the $\Upsilon(4S)$ decays 40% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^0 \nu \overline{\nu})/\Gamma_{\text{total}}$ Γ_{546}/Γ

Test for $\Delta B = 1$ weak neutral current. Allowed by higher-order electroweak interaction.

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$< 2.6 \times 10^{-5}$	90	[1] GRYGIER	17	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$< 4.9 \times 10^{-5}$	90	[1,2] LEES	13I	BABR	$e^+ e^- \to \Upsilon(4S)$
$<19.4 \times 10^{-5}$	90	[1] LUTZ	13	BELL	$e^+ e^- \to \Upsilon(4S)$
$< 5.6 \times 10^{-5}$	90	[1] DEL-AMO-SA...	10Q	BABR	Repl. by LEES 13I
$< 1.6 \times 10^{-4}$	90	[1] CHEN	07D	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Also reported a limit $< 8.1 \times 10^{-5}$ at 90% CL obtained using a fully reconstructed hadronic B-tag evnets.

$\Gamma(\rho^0 \nu \overline{\nu})/\Gamma_{\text{total}}$ Γ_{547}/Γ

Test for $\Delta B = 1$ weak neutral current. Allowed by higher-order electroweak interaction.

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<4.0 \times 10^{-5}$	90	[1] GRYGIER	17	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<2.08 \times 10^{-4}$	90	[1] LUTZ	13	BELL	$e^+ e^- \to \Upsilon(4S)$
$<4.4 \times 10^{-4}$	90	[1] CHEN	07D	BELL	Repl. by LUTZ 13

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^0 \mu^+ \mu^-)/\Gamma_{\text{total}}$ Γ_{545}/Γ

Test for ΔB=1 weak neutral current. Allowed by higher-order electroweak interactions.

VALUE (units 10^{-7})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
3.39±0.35 OUR FIT Error includes scale factor of 1.1.					
3.39±0.35 OUR AVERAGE					
$3.9 \, {}^{+1.0}_{-0.8} \pm 0.3$		CHOUDHURY	21	BELL	$e^+ e^- \to \Upsilon(4S)$
$3.27 \pm 0.34 \pm 0.17$		[1] AAIJ	14M	LHCB	pp at 7, 8 TeV
$4.9 \, {}^{+2.9}_{-2.5} \pm 0.3$		[2] AUBERT	09T	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$3.1 \, {}^{+0.7}_{-0.6}$		AAIJ	12AH	LHCB	Repl. by AAIJ 14M
$4.4 \, {}^{+1.3}_{-1.1} \pm 0.3$		[2,3] WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$
$5.9 \, {}^{+3.3}_{-2.6} \pm 0.7$		[2] AUBERT,B	06J	BABR	Repl. by AUBERT 09T
$1.63 \, {}^{+0.82}_{-0.63} \pm 0.14$		[2] AUBERT	03U	BABR	Repl. by AUBERT,B 06J
$5.6 \, {}^{+2.9}_{-2.3} \pm 0.5$		[4] ISHIKAWA	03	BELL	Repl. by WEI 09A
<33	90	[2] ABE	02	BELL	Repl. by ISHIKAWA 03
<36	90	AUBERT	02L	BABR	$e^+ e^- \to \Upsilon(4S)$
<66.4	90	[5] ANDERSON	01B	CLE2	$e^+ e^- \to \Upsilon(4S)$
<5200	90	ALBRECHT	91E	ARG	$e^+ e^- \to \Upsilon(4S)$
<3600	90	[6] AVERY	87	CLEO	$e^+ e^- \to \Upsilon(4S)$

[1] Uses B($B^0 \to J/\psi(1S) K^0$) = $(0.928 \pm 0.013 \pm 0.037) \times 10^{-3}$ for normalization.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] Superseded by CHOUDHURY 21.

[4] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$. The second error is a total of systematic uncertainties including model dependence.

[5] The result is for di-lepton masses above 0.5 GeV.

[6] AVERY 87 reports $< 4.5 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 40% to $B^0 \overline{B}^0$. We rescale to 50%.

$\Gamma(K^0 \mu^+ \mu^-)/\Gamma(J/\psi(1S) K^0)$ $\Gamma_{545}/\Gamma_{201}$

VALUE (units 10^{-3})	*DOCUMENT ID*	*TECN*	*COMMENT*
0.38±0.04 OUR FIT Error includes scale factor of 1.1.			
0.37±0.12±0.02	AALTONEN 11AI	CDF	$p\overline{p}$ at 1.96 TeV

$\Gamma(K^*(892)^0 \ell^+ \ell^-)/\Gamma_{\text{total}}$ Γ_{548}/Γ

Test for ΔB=1 weak neutral current. Allowed by higher-order electroweak interactions.

VALUE (units 10^{-7})	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{9.9^{+1.2}_{-1.1}}$ **OUR AVERAGE**			
$10.3^{+2.2}_{-2.1} \pm 0.7$	[1] AUBERT 09T	BABR	$e^+ e^- \to \Upsilon(4S)$
$9.7^{+1.3}_{-1.1} \pm 0.7$	[1] WEI 09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$8.1^{+2.1}_{-1.9} \pm 0.9$	[1] AUBERT,B 06J	BABR	Repl. by AUBERT 09T
$11.7^{+3.0}_{-2.7} \pm 0.9$	[1] ISHIKAWA 03	BELL	Repl. by WEI 09A

[1] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$.

$\Gamma(K^*(892)^0 e^+ e^-)/\Gamma_{\text{total}}$ Γ_{549}/Γ

Test for ΔB=1 weak neutral current. Allowed by higher-order electroweak interactions.

VALUE (units 10^{-7})	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{10.3^{+1.9}_{-1.7}}$ **OUR AVERAGE**				
$8.6^{+2.6}_{-2.4} \pm 0.5$		[1] AUBERT 09T	BABR	$e^+ e^- \to \Upsilon(4S)$
$11.8^{+2.7}_{-2.2} \pm 0.9$		[1] WEI 09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$10.4^{+3.3}_{-2.9} \pm 1.1$		[1] AUBERT,B 06J	BABR	Repl. by AUBERT 09T
$11.1^{+5.6}_{-4.7} \pm 1.1$		[1] AUBERT 03U	BABR	$e^+ e^- \to \Upsilon(4S)$
< 24	90	[2] ISHIKAWA 03	BELL	$e^+ e^- \to \Upsilon(4S)$
< 64	90	[1] ABE 02	BELL	Repl. by ISHIKAWA 03
< 67	90	[1] AUBERT 02L	BABR	$e^+ e^- \to \Upsilon(4S)$
<2900	90	ALBRECHT 91E	ARG	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$.

$\Gamma(K^*(892)^0\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{550}/Γ

Test for ΔB=1 weak neutral current. Allowed by higher-order electroweak interactions.

VALUE (units 10^{-7})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
9.4 ±0.5 OUR FIT					
9.4 ±0.6 OUR AVERAGE					
$9.04^{+0.16}_{-0.15}\pm0.62$		[1] AAIJ	17Q	LHCB	pp at 7, 8 TeV
$13.5\ ^{+4.0}_{-3.7}\ \pm1.0$		[2] AUBERT	09T	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
$10.6\ ^{+1.9}_{-1.4}\ \pm0.7$		[2] WEI	09A	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$10.36^{+0.18}_{-0.17}\pm0.71$		[1] AAIJ	16AO	LHCB	Repl. by AAIJ 17Q
$8.7\ ^{+3.8}_{-3.3}\ \pm1.2$		[2] AUBERT,B	06J	BABR	Repl. by AUBERT 09T
$8.6\ ^{+7.9}_{-5.8}\ \pm1.1$		[2] AUBERT	03U	BABR	Repl. by AUBERT,B 06J
$13.3\ ^{+4.2}_{-3.7}\ \pm1.1$		[3] ISHIKAWA	03	BELL	Repl. by WEI 09A
<42	90	[2] ABE	02	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
<33	90	AUBERT	02L	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
<40	90	[4] AFFOLDER	99B	CDF	$p\overline{p}$ at 1.8 TeV

[1] Uses B($B^0 \rightarrow J/\psi K^*(892)^0$) = $(1.19 \pm 0.01 \pm 0.08) \times 10^{-3}$. The second error is the total systematic uncertainty.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[3] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$. The second error is a total of systematic uncertainties including model dependence.

[4] AFFOLDER 99B measured relative to $B^0 \rightarrow J/\psi(1S) K^*(892)^0$.

$\Gamma(K^*(892)^0\mu^+\mu^-)/\Gamma(J/\psi(1S)K^*(892)^0)$ $\Gamma_{550}/\Gamma_{203}$

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
0.75±0.05 OUR FIT				
0.77±0.08±0.03	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.80±0.10±0.06	AALTONEN	11L	CDF	Repl. by AALTONEN 11AI
0.61±0.23±0.07	AALTONEN	09B	CDF	Repl. by AALTONEN 11L

$\Gamma(K^*(892)^0\chi,\ \chi\rightarrow\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{551}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\boldsymbol{< \sim 10^{-9}}$	95	[1] AAIJ	15AZ	LHCB	pp at 7, 8 TeV

[1] The limt is obtained as a function of di-muon mass. A normalizing mode branching fraction value of B($B^0 \rightarrow K^{*0}\mu^+\mu^-$) = $(1.6 \pm 0.3) \times 10^{-7}$ is used.

$\Gamma(\pi^+\pi^-\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{552}/Γ

VALUE (units 10^{-8})	*DOCUMENT ID*		*TECN*	*COMMENT*
2.1±0.5±0.1	[1] AAIJ	15S	LHCB	pp at 7, 8 TeV

[1] AAIJ 15S reports $(2.11 \pm 0.51 \pm 0.15 \pm 0.16) \times 10^{-8}$ from a measurement of [$\Gamma(B^0 \rightarrow \pi^+\pi^-\mu^+\mu^-)/\Gamma_{\text{total}}$] / [B($B^0 \rightarrow J/\psi(1S) K^*(892)^0$)] assuming B($B^0 \rightarrow J/\psi(1S) K^*(892)^0$) = $(1.3 \pm 0.1) \times 10^{-3}$, which we rescale to our best value B($B^0 \rightarrow J/\psi(1S) K^*(892)^0$) = $(1.27 \pm 0.05) \times 10^{-3}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(K^*(892)^0 \nu\overline{\nu})/\Gamma_{\text{total}}$ Γ_{553}/Γ

Test for ΔB=1 weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<1.8 \times 10^{-5}}$	90	[1] GRYGIER	17	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.2 \times 10^{-4}$	90	[1,2] LEES	13I	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
$<5.5 \times 10^{-5}$	90	[1] LUTZ	13	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
$<1.2 \times 10^{-4}$	90	AUBERT	08BC	BABR	Repl. by LEES 13I
$<3.4 \times 10^{-4}$	90	[1] CHEN	07D	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
$<1.0 \times 10^{-3}$	90	[3] ADAM	96D	DLPH	$e^+e^- \rightarrow Z$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[2] Also reported a limit $< 9.3 \times 10^{-5}$ at 90% CL obtained using a fully reconstructed hadronic B-tag evnets.

[3] ADAM 96D assumes $f_{B^0} = f_{B^-} = 0.39$ and $f_{B_s} = 0.12$.

$\Gamma(\text{invisible})/\Gamma_{\text{total}}$ Γ_{554}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
< 2.4	90	[1] LEES	12T	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
< 7.8	90	[2] KU	20	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
<13	90	[3] HSU	12	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
<22	90	[1] AUBERT,B	04J	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Uses the fully reconstructed $B^0 \rightarrow D^{(*)-} \ell^+ \nu_\ell$ events as a tag.

[2] Identified by fully reconstructing a hadronic decay of the accompanying B meson .

[3] Identified by fully reconstructing a hadronic decay of the accompanying B meson and requiring no other particles in the event.

$\Gamma(\nu\overline{\nu}\gamma)/\Gamma_{\text{total}}$ Γ_{555}/Γ

VALUE (units 10^{-5})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.6	90	[1] KU	20	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<1.7	90	[2] LEES	12T	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
<4.7	90	[2] AUBERT,B	04J	BABR	Repl. by LEES 12T

[1] Identified by fully reconstructing a hadronic decay of the accompanying B meson .

[2] Uses the fully reconstructed $B^0 \rightarrow D^{(*)-} \ell^+ \nu_\ell$ events as a tag.

$\Gamma(\phi\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{556}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<3.2 \times 10^{-9}}$	90	[1] AAIJ	22S	LHCB	pp at 7, 8, 13 TeV

[1] Using B($B_s^0 \rightarrow \phi\mu^+\mu^-$) as normalization. The limit is set for the full q^2 phase space.

$\Gamma(\phi\nu\overline{\nu})/\Gamma_{\text{total}}$ Γ_{557}/Γ

Test for $\Delta B = 1$ weak neutral current. Allowed by higher-order electroweak interaction.

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<1.27 \times 10^{-4}}$	90	[1] LUTZ	13	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<5.8 \times 10^{-5}$	90	[1] CHEN	07D	BELL	Repl. by LUTZ 13

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(e^{\pm}\mu^{\mp})/\Gamma_{\text{total}}$ Γ_{558}/Γ

Test of lepton family number conservation. Allowed by higher-order electroweak interactions.

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$< 1.0 \times 10^{-9}$	90	[1] AAIJ	18T	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$< 2.8 \times 10^{-9}$	90	[2] AAIJ	13BM	LHCB	Repl. by AAIJ 18T
$< 6.4 \times 10^{-8}$	90	AALTONEN	09P	CDF	$p\overline{p}$ at 1.96 TeV
$< 9.2 \times 10^{-8}$	90	[3] AUBERT	08P	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
$< 1.8 \times 10^{-7}$	90	[3] AUBERT	05W	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
$< 1.7 \times 10^{-7}$	90	[3] CHANG	03	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
$<15 \times 10^{-7}$	90	[3] BERGFELD	00B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
$< 3.5 \times 10^{-6}$	90	ABE	98V	CDF	$p\overline{p}$ at 1.8 TeV
$< 1.6 \times 10^{-5}$	90	[4] ACCIARRI	97B	L3	$e^+e^- \rightarrow Z$
$< 5.9 \times 10^{-6}$	90	AMMAR	94	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
$< 3.4 \times 10^{-5}$	90	[5] AVERY	89B	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
$< 4.5 \times 10^{-5}$	90	[6] ALBRECHT	87D	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
$< 7.7 \times 10^{-5}$	90	[7] AVERY	87	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
$< 3 \times 10^{-4}$	90	GILES	84	CLEO	Repl. by AVERY 87

[1] AAIJ 18T uses normalization modes B($B^0 \rightarrow K^+\pi^-$) = $(19.6 \pm 0.5) \times 10^{-6}$ and B($B^+ \rightarrow J/\psi K^+$) = $(1.026 \pm 0.031) \times 10^{-3}$.

[2] Uses normalization mode B($B^0 \rightarrow K^+\pi^-$) = $(19.4 \pm 0.6) \times 10^{-6}$.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

[4] ACCIARRI 97B assume PDG 96 production fractions for B^+, B^0, B_s, and Λ_b.

[5] Paper assumes the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

[6] ALBRECHT 87D reports $< 5 \times 10^{-5}$ assuming the $\Upsilon(4S)$ decays 45% to $B^0\overline{B}^0$. We rescale to 50%.

[7] AVERY 87 reports $< 9 \times 10^{-5}$ assuming the $\Upsilon(4S)$ decays 40% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(\pi^0 e^{\pm}\mu^{\mp})/\Gamma_{\text{total}}$ Γ_{559}/Γ

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<1.4 \times 10^{-7}$	90	[1] AUBERT	07AG	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^0 e^{\pm}\mu^{\mp})/\Gamma_{\text{total}}$ Γ_{560}/Γ

Test of lepton family number conservation.

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$< 3.8 \times 10^{-8}$	90	CHOUDHURY	21	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$< 2.7 \times 10^{-7}$	90	[1] AUBERT,B	06J	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
$<40 \times 10^{-7}$	90	[1] AUBERT	02L	BABR	Repl. by AUBERT,B 06J

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^*(892)^0 e^+\mu^-)/\Gamma_{\text{total}}$ Γ_{561}/Γ

VALUE (units 10^{-7})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.6	90	[1] SANDILYA	18	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

<5.3	90	[2] AUBERT,B	06J	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Uses B($\Upsilon(4S) \to B^0 \overline{B}^0$) = 0.486 ± 0.006.

[2] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$.

$\Gamma(K^*(892)^0 e^- \mu^+)/\Gamma_{\text{total}}$ Γ_{562}/Γ

VALUE (units 10^{-7})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.2	90	[1] SANDILYA	18	BELL	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE (units 10^{-7})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<3.4	90	[2] AUBERT,B	06J	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Uses B($\Upsilon(4S) \to B^0 \overline{B}^0$) = 0.486 ± 0.006.

[2] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$.

$\Gamma(K^*(892)^0 e^\pm \mu^\mp)/\Gamma_{\text{total}}$ Γ_{563}/Γ

Test of lepton family number conservation.

VALUE (units 10^{-7})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
< 1.8	90	[1] SANDILYA	18	BELL	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE (units 10^{-7})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
< 5.8	90	[2] AUBERT,B	06J	BABR	$e^+ e^- \to \Upsilon(4S)$
<34	90	[2] AUBERT	02L	BABR	Repl. by AUBERT,B 06J

[1] Uses B($\Upsilon(4S) \to B^0 \overline{B}^0$) = 0.486 ± 0.006.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(e^\pm \tau^\mp)/\Gamma_{\text{total}}$ Γ_{564}/Γ

Test of lepton family number conservation. Allowed by higher-order electroweak interactions.

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<1.6 \times 10^{-5}}$	90	[1] ATMACAN	21	BELL	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<2.8 \times 10^{-5}$	90	[2] AUBERT	08AD	BABR	$e^+ e^- \to \Upsilon(4S)$
$<1.1 \times 10^{-4}$	90	BORNHEIM	04	CLE2	$e^+ e^- \to \Upsilon(4S)$
$<5.3 \times 10^{-4}$	90	AMMAR	94	CLE2	Repl. by BORNHEIM 04

[1] Uses events in which one B meson is fully reconstructed in a hadronic decay mode.

[2] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\mu^\pm \tau^\mp)/\Gamma_{\text{total}}$ Γ_{565}/Γ

Test of lepton family number conservation. Allowed by higher-order electroweak interactions.

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{<1.4 \times 10^{-5}}$	95	[1] AAIJ	19AK	LHCB	pp at 7, 8 TeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
$<1.5 \times 10^{-5}$	90	[2] ATMACAN	21	BELL	$e^+ e^- \to \Upsilon(4S)$
$<2.2 \times 10^{-5}$	90	[3] AUBERT	08AD	BABR	$e^+ e^- \to \Upsilon(4S)$
$<3.8 \times 10^{-5}$	90	BORNHEIM	04	CLE2	$e^+ e^- \to \Upsilon(4S)$
$<8.3 \times 10^{-4}$	90	AMMAR	94	CLE2	Repl. by BORNHEIM 04

[1] Assuming no contribution from $B^0_s \to \mu^\pm \tau^\mp$.

[2] Uses events in which one B meson is fully reconstructed in a hadronic decay mode.

[3] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\Lambda_c^+ \mu^-)/\Gamma_{\text{total}}$ — Γ_{566}/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
$<1.4 \times 10^{-6}$	90	[1,2] DEL-AMO-SA..11K	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] DEL-AMO-SANCHEZ 11K reports $< 180 \times 10^{-8}$ from a measurement of $[\Gamma(B^0 \rightarrow \Lambda_c^+ \mu^-)/\Gamma_{\text{total}}] \times [B(\Lambda_c^+ \rightarrow pK^-\pi^+)]$ assuming $B(\Lambda_c^+ \rightarrow pK^-\pi^+) = (5.0 \pm 1.3) \times 10^{-2}$, which we rescale to our best value $B(\Lambda_c^+ \rightarrow pK^-\pi^+) = 6.26 \times 10^{-2}$.

[2] Uses $B(\Upsilon(4S) \rightarrow B^0 \overline{B}{}^0) = (51.6 \pm 0.6)\%$ and $B(\Upsilon(4S) \rightarrow B^+ B^-) = (48.4 \pm 0.6)\%$.

$\Gamma(\Lambda_c^+ e^-)/\Gamma_{\text{total}}$ — Γ_{567}/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
$<4 \times 10^{-6}$	90	[1,2] DEL-AMO-SA..11K	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$

[1] DEL-AMO-SANCHEZ 11K reports $< 520 \times 10^{-8}$ from a measurement of $[\Gamma(B^0 \rightarrow \Lambda_c^+ e^-)/\Gamma_{\text{total}}] \times [B(\Lambda_c^+ \rightarrow pK^-\pi^+)]$ assuming $B(\Lambda_c^+ \rightarrow pK^-\pi^+) = (5.0 \pm 1.3) \times 10^{-2}$, which we rescale to our best value $B(\Lambda_c^+ \rightarrow pK^-\pi^+) = 6.26 \times 10^{-2}$.

[2] Uses $B(\Upsilon(4S) \rightarrow B^0 \overline{B}{}^0) = (51.6 \pm 0.6)\%$ and $B(\Upsilon(4S) \rightarrow B^+ B^-) = (48.4 \pm 0.6)\%$.

B_s^0 CROSS-PARTICLE BRANCHING RATIOS

$\Gamma([K^+K^-]_D K^*(892)^0)/\Gamma_{\text{total}} \times B(B_s^0 \rightarrow [K^+K^-]_D K^*(892)^0)$ — $\Gamma_{143}/\Gamma \times B$

VALUE	DOCUMENT ID	TECN	COMMENT
0.10±0.02±0.01	AAIJ 14BN	LHCB	pp at 7, 8 TeV

$\Gamma([\pi^+\pi^-]_D K^*(892)^0)/\Gamma_{\text{total}} \times B(B_s^0 \rightarrow [\pi^+\pi^-]_D K^*(892)^0)$ — $\Gamma_{144}/\Gamma \times B$

VALUE	DOCUMENT ID	TECN	COMMENT
0.15±0.04±0.01	AAIJ 14BN	LHCB	pp at 7, 8 TeV

See the related review(s):

Polarization in *B* Decays

POLARIZATION IN B^0 DECAY

In decays involving two vector mesons, one can distinguish among the states in which meson polarizations are both longitudinal (L) or both are transverse and parallel ($\parallel$) or perpendicular ($\perp$) to each other with the parameters Γ_L/Γ, $\Gamma_\perp/\Gamma$, and the relative phases $\phi_\parallel$ and $\phi_\perp$. See the definitions in the note on "Polarization in *B* Decays" review in the B^0 Particle Listings.

Γ_L/Γ in $B^0 \rightarrow J/\psi(1S) K^*(892)^0$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.571±0.007 OUR AVERAGE				
0.572±0.006±0.014		[1] AAIJ 13AT	LHCB	pp at 7 TeV
0.587±0.011±0.013		[2] ABAZOV 09E	D0	$p\overline{p}$ at 1.96 TeV
0.556±0.009±0.010		[3] AUBERT 07AD	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
0.562±0.026±0.018		ACOSTA 05	CDF	$p\overline{p}$ at 1.96 TeV
0.574±0.012±0.009		ITOH 05	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

0.59 ±0.06 ±0.01		[4] AFFOLDER	00N	CDF	$p\overline{p}$ at 1.8 TeV
0.52 ±0.07 ±0.04		[5] JESSOP	97	CLE2	$e^+e^- \to \Upsilon(4S)$
0.65 ±0.10 ±0.04	65	ABE	95Z	CDF	$p\overline{p}$ at 1.8 TeV
0.97 ±0.16 ±0.15	13	[6] ALBRECHT	94G	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.566±0.012±0.005		[3] AUBERT	05P	BABR	Repl. by AUBERT 07AD
0.62 ±0.02 ±0.03		[7] ABE	02N	BELL	Repl. by ITOH 05
0.597±0.028±0.024		[8] AUBERT	01H	BABR	Repl. by AUBERT 07AD
0.80 ±0.08 ±0.05	42	[6] ALAM	94	CLE2	Sup. by JESSOP 97

[1] AAIJ 13AT obtains $\Gamma_{\parallel}/\Gamma = 0.227 \pm 0.004 \pm 0.011$. The relation $1 = (\Gamma_L + \Gamma_\perp + \Gamma_{\parallel})/\Gamma$ is used to obtain Γ_L/Γ.

[2] Measured the angular and lifetime parameters for the time-dependent angular untagged decays $B^0_d \to J/\psi K^{*0}$ and $B^0_s \to J/\psi\phi$.

[3] Obtained by combining the B^0 and B^+ modes.

[4] AFFOLDER 00N measurements are based on 190 B^0 candidates obtained from a data sample of 89 pb^{-1}. The P-wave fraction is found to be $0.13^{+0.12}_{-0.09} \pm 0.06$.

[5] JESSOP 97 is the average over a mixture of B^0 and B^+ decays. The P-wave fraction is found to be 0.16 ± 0.08 ± 0.04.

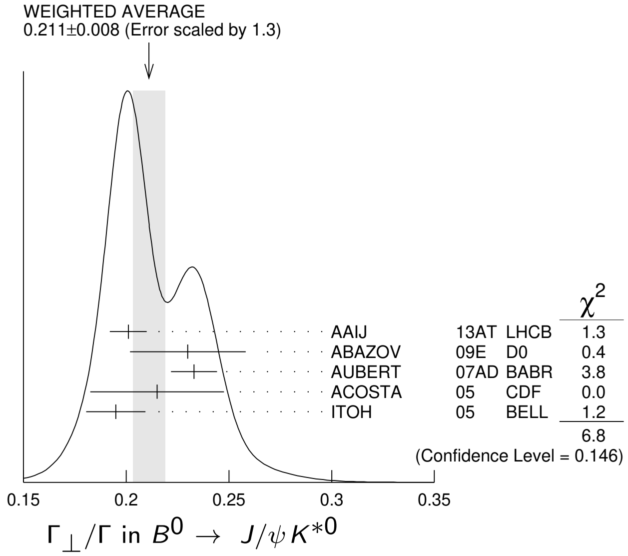
[6] Averaged over an admixture of B^0 and B^+ decays.

[7] Averaged over an admixture of B^0 and B^+ decays and the P wave fraction is (19 ± 2 ± 3)%.

[8] Averaged over an admixture of B^0 and B^- decays and the P wave fraction is $(16.0 \pm 3.2 \pm 1.4) \times 10^{-2}$.

$\Gamma_\perp/\Gamma$ in $B^0 \to J/\psi K^{*0}$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.211±0.008 OUR AVERAGE	Error includes scale factor of 1.3.		See the ideogram below.
0.201±0.004±0.008	AAIJ 13AT	LHCB	pp at 7 TeV
0.230±0.013±0.025	[1] ABAZOV 09E	D0	$p\overline{p}$ at 1.96 TeV
0.233±0.010±0.005	[2] AUBERT 07AD	BABR	$e^+e^- \to \Upsilon(4S)$
0.215±0.032±0.006	ACOSTA 05	CDF	$p\overline{p}$ at 1.96 TeV
0.195±0.012±0.008	ITOH 05	BELL	$e^+e^- \to \Upsilon(4S)$

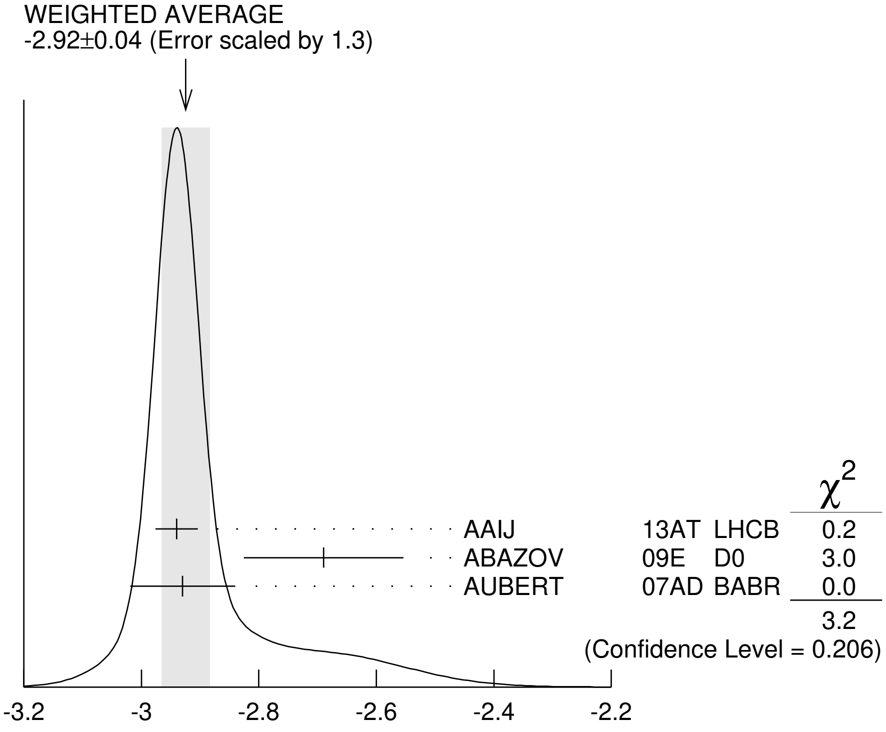


[1] Measured the angular and lifetime parameters for the time-dependent angular untagged decays $B^0_d \to J/\psi K^{*0}$ and $B^0_s \to J/\psi\phi$.

[2] Obtained by combining the B^0 and B^+ modes.

$\phi_{\|}$ in $B^0 \to J/\psi K^{*0}$

VALUE (rad)		*DOCUMENT ID*	*TECN*	*COMMENT*
$-$2.92$\pm$0.04 OUR AVERAGE	Error includes scale factor of 1.3. See the ideogram below.			
$-2.94\pm0.02\pm0.03$		AAIJ	13AT LHCB	pp at 7 TeV
$-2.69\pm0.08\pm0.11$	[1]	ABAZOV	09E D0	$p\overline{p}$ at 1.96 TeV
$-2.93\pm0.08\pm0.04$	[2]	AUBERT	07AD BABR	$e^+e^- \to \Upsilon(4S)$



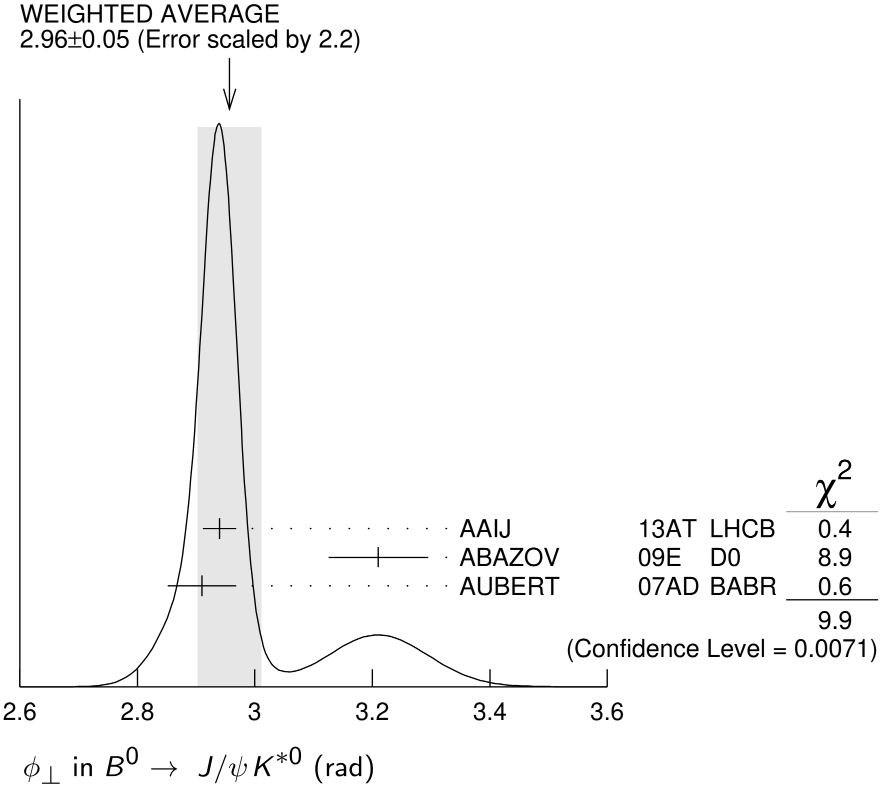
$\phi_{\|}$ in $B^0 \to J/\psi K^{*0}$ (rad)

[1] Obtained $\phi_{\|}$ as $\delta_2 - \delta_1$, assuming they are uncorrelated.

[2] Obtained by combining the B^0 and B^+ modes.

$\phi_{\perp}$ in $B^0 \to J/\psi K^{*0}$

VALUE (rad)		*DOCUMENT ID*	*TECN*	*COMMENT*
2.96$\pm$0.05 OUR AVERAGE	Error includes scale factor of 2.2. See the ideogram below.			
$2.94\pm0.02\pm0.02$		AAIJ	13AT LHCB	pp at 7 TeV
$3.21\pm0.06\pm0.06$		ABAZOV	09E D0	$p\overline{p}$ at 1.96 TeV
$2.91\pm0.05\pm0.03$	[1]	AUBERT	07AD BABR	$e^+e^- \to \Upsilon(4S)$



$\phi_\perp$ in $B^0 \to J/\psi K^{*0}$ (rad)

[1] Obtained by combining the B^0 and B^+ modes.

Γ_L/Γ in $B^0 \to \psi(2S) K^*(892)^0$

VALUE	DOCUMENT ID		TECN	COMMENT
$0.463^{+0.028}_{-0.040}$ OUR AVERAGE				
$0.455^{+0.031}_{-0.029}{}^{+0.014}_{-0.049}$	CHILIKIN	13	BELL	$e^+e^- \to \Upsilon(4S)$
$0.48 \pm 0.05 \pm 0.02$	[1] AUBERT	07AD	BABR	$e^+e^- \to \Upsilon(4S)$
$0.45 \pm 0.11 \pm 0.04$	[2] RICHICHI	01	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.448^{+0.040}_{-0.027}{}^{+0.040}_{-0.053}$	MIZUK	09	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Obtained by combining the B^0 and B^+ modes.

[2] Averages between charged and neutral B mesons.

$\Gamma_\perp/\Gamma$ in $B^0 \to \psi(2S) K^{*0}$

VALUE	DOCUMENT ID		TECN	COMMENT
$0.30 \pm 0.06 \pm 0.02$	[1] AUBERT	07AD	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Obtained by combining the B^0 and B^+ modes.

$\phi_\parallel$ in $B^0 \to \psi(2S) K^{*0}$

VALUE (rad)	DOCUMENT ID		TECN	COMMENT
$-2.8 \pm 0.4 \pm 0.1$	[1] AUBERT	07AD	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Obtained by combining the B^0 and B^+ modes.

$\phi_{\perp}$ in $B^0 \to \psi(2S) K^{*0}$

VALUE (rad)	*DOCUMENT ID*		*TECN*	*COMMENT*
$2.8 \pm 0.3 \pm 0.1$	[1] AUBERT	07AD	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Obtained by combining the B^0 and B^+ modes.

Γ_L/Γ in $B^0 \to \chi_{c1} K^*(892)^0$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.83^{+0.06}_{-0.08}$ OUR AVERAGE	Error includes scale factor of 1.3.			
$0.947^{+0.038}_{-0.048}{}^{+0.046}_{-0.099}$	MIZUK	08	BELL	$e^+ e^- \to \Upsilon(4S)$
$0.77 \pm 0.07 \pm 0.04$	[1] AUBERT	07AD	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Obtained by combining the B^0 and B^+ modes.

$\Gamma_{\perp}/\Gamma$ in $B^0 \to \chi_{c1} K^*(892)^0$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.03 \pm 0.04 \pm 0.02$	[1] AUBERT	07AD	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Obtained by combining the B^0 and B^+ modes.

$\phi_{\parallel}$ in $B^0 \to \chi_{c1} K^*(892)^0$

VALUE (rad)	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.0 \pm 0.3 \pm 0.1$	[1] AUBERT	07AD	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Obtained by combining the B^0 and B^+ modes.

Γ_L/Γ in $B^0 \to D_s^{*+} D^{*-}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.574 ± 0.014 OUR AVERAGE				
$0.578 \pm 0.010 \pm 0.011$	[1] AAIJ	21S	LHCB	pp at 13 TeV
$0.519 \pm 0.050 \pm 0.028$	[2] AUBERT	03I	BABR	$e^+ e^- \to \Upsilon(4S)$
$0.506 \pm 0.139 \pm 0.036$	AHMED	00B	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] AAIJ 21S uses $D_s^{*+} \to D_s^+ \gamma$ decays.

[2] Measurement performed using partial reconstruction of D^{*-} decay.

$|H_+|$ in $B^0 \to D_s^{*+} D^{*-}$

H_+, H_- define parity-even ($\|$) and parity-odd ($\perp$) polarization transversity amplitudes $A_{\|,\perp} = (H_+ \pm H_-)/\sqrt{2}$.

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.195 \pm 0.022 \pm 0.032$	[1] AAIJ	21S	BELL	pp at 13 TeV

[1] AAIJ 21S uses $D_s^{*+} \to D_s^+ \gamma$ decays.

$|H_-|$ in $B^0 \to D_s^{*+} D^{*-}$

H_+, H_- define parity-even ($\|$) and parity-odd ($\perp$) polarization transversity amplitudes $A_{\|,\perp} = (H_+ \pm H_-)/\sqrt{2}$.

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.620 \pm 0.011 \pm 0.013$	[1] AAIJ	21S	LHCB	pp at 13 TeV

[1] AAIJ 21S uses $D_s^{*+} \to D_s^+ \gamma$ decays.

ϕ_+ in $B^0 \to D_s^{*+} D^{*-}$

VALUE	DOCUMENT ID	TECN	COMMENT
$-0.046 \pm 0.102 \pm 0.020$	[1] AAIJ 21S	LHCB	pp at 13 TeV

[1] AAIJ 21S uses $D_s^{*+} \to D_s^+ \gamma$ decays.

ϕ_- in $B^0 \to D_s^{*+} D^{*-}$

VALUE	DOCUMENT ID	TECN	COMMENT
$0.108 \pm 0.170 \pm 0.051$	[1] AAIJ 21S	LHCB	pp at 13 TeV

[1] AAIJ 21S uses $D_s^{*+} \to D_s^+ \gamma$ decays.

Γ_L/Γ in $B^0 \to D^{*-} \rho^+$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
$0.885 \pm 0.016 \pm 0.012$		CSORNA 03	CLE2	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.93 \pm 0.05 \pm 0.05$	76	ALAM 94	CLE2	$e^+ e^- \to \Upsilon(4S)$

Γ_L/Γ in $B^0 \to D_s^{*+} \rho^-$

VALUE	DOCUMENT ID	TECN	COMMENT
$0.84^{+0.26}_{-0.28} \pm 0.13$	[1] AUBERT 08AJ	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

Γ_L/Γ in $B^0 \to D_s^{*+} K^{*-}$

VALUE	DOCUMENT ID	TECN	COMMENT
$0.92^{+0.37}_{-0.31} \pm 0.07$	[1] AUBERT 08AJ	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

Γ_L/Γ in $B^0 \to D^{*+} D^{*-}$

VALUE	DOCUMENT ID	TECN	COMMENT
$0.624 \pm 0.029 \pm 0.011$	KRONENBIT...12	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.57 \pm 0.08 \pm 0.02$	MIYAKE 05	BELL	Repl. by KRONENBITTER 12

$\Gamma_\perp/\Gamma$ in $B^0 \to D^{*+} D^{*-}$

VALUE	DOCUMENT ID	TECN	COMMENT
0.147 ± 0.019 OUR AVERAGE			
$0.138 \pm 0.024 \pm 0.006$	KRONENBIT...12	BELL	$e^+ e^- \to \Upsilon(4S)$
$0.158 \pm 0.028 \pm 0.006$	AUBERT 09C	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.125 \pm 0.043 \pm 0.023$	VERVINK 09	BELL	Repl. by KRONENBITTER 12
$0.143 \pm 0.034 \pm 0.008$	AUBERT 07BO	BABR	Repl. by AUBERT 09C
$0.125 \pm 0.044 \pm 0.007$	AUBERT,BE 05A	BABR	Repl. by AUBERT 07BO
$0.19 \pm 0.08 \pm 0.01$	MIYAKE 05	BELL	Repl. by VERVINK 09
$0.063 \pm 0.055 \pm 0.009$	AUBERT 03Q	BABR	Repl. by AUBERT,BE 05A

Γ_L/Γ in $B^0 \to \overline{D}^{*0} \omega$

VALUE	DOCUMENT ID	TECN	COMMENT
$0.665 \pm 0.047 \pm 0.015$	LEES 11M	BABR	$e^+ e^- \to \Upsilon(4S)$

Γ_L/Γ in $B^0 \to \overline{D}_1(2430)^0\omega$

VALUE (%)	*DOCUMENT ID*	*TECN*	*COMMENT*
$63.0 \pm 9.1^{+6.5}_{-6.0}$	[1,2] MATVIENKO 15	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Obtained by amplitude analysis of $\overline{B}^0 \to D^{*-}\omega\pi^+$. The second uncertainty combines in qudrature experimental systematic and model uncertainties.

[2] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$.

Γ_L/Γ in $B^0 \to \overline{D}_1(2420)^0\omega$

VALUE (%)	*DOCUMENT ID*	*TECN*	*COMMENT*
$67.1 \pm 11.7^{+2.3}_{-5.0}$	[1,2] MATVIENKO 15	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Obtained by amplitude analysis of $\overline{B}^0 \to D^{*-}\omega\pi^+$. The second uncertainty combines in qudrature experimental systematic and model uncertainties.

[2] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$.

Γ_L/Γ in $B^0 \to \overline{D}_2^*(2460)^0\omega$

VALUE (%)	*DOCUMENT ID*	*TECN*	*COMMENT*
$76.0^{+18.3+3.5}_{-\ 8.5-2.8}$	[1,2] MATVIENKO 15	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Obtained by amplitude analysis of $\overline{B}^0 \to D^{*-}\omega\pi^+$. The second uncertainty combines in qudrature experimental systematic and model uncertainties.

[2] Assumes equal production of B^0 and B^+ at $\Upsilon(4S)$.

Γ_L/Γ in $B^0 \to D^{*-}\omega\pi^+$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.654 \pm 0.042 \pm 0.016$	[1] AUBERT 06L	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Invariant mass of the $[\omega\pi]$ system is restricted in the region 1.1 and 1.9 GeV.

Γ_L/Γ in $B^0 \to \omega K^{*0}$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.69 ± 0.11 OUR AVERAGE			
$0.68 \pm 0.17 \pm 0.16$	AAIJ 19J	LHCB	pp at 7, 8 TeV
$0.72 \pm 0.14 \pm 0.02$	AUBERT 09H	BABR	$e^+e^- \to \Upsilon(4S)$
$0.56 \pm 0.29^{+0.18}_{-0.08}$	GOLDENZWE..08	BELL	$e^+e^- \to \Upsilon(4S)$

$\Gamma_\perp/\Gamma$ in $B^0 \to \omega K^*(892)^0$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.10 \pm 0.09 \pm 0.09$	AAIJ 19J	LHCB	pp at 7, 8 TeV

A_{CP}^0 in $B^0 \to \omega K^*(892)^0$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$-0.13 \pm 0.27 \pm 0.13$	AAIJ 19J	LHCB	pp at 7, 8 TeV

$A_{CP}^\perp$ in $B^0 \to \omega K^*(892)^0$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.3 \pm 0.8 \pm 0.4$	AAIJ 19J	LHCB	pp at 7, 8 TeV

$A_{CP}^{\parallel}$ in $B^0 \to \omega K^*(892)^0$

VALUE	DOCUMENT ID		TECN	COMMENT
0.26±0.55±0.22	AAIJ	19J	LHCB	pp at 7, 8 TeV

ϕ_0 in $B^0 \to \omega K^*(892)^0$

VALUE	DOCUMENT ID		TECN	COMMENT
−0.86±0.29±0.71	AAIJ	19J	LHCB	pp at 7, 8 TeV

$\phi_\perp$ in $B^0 \to \omega K^*(892)^0$

VALUE	DOCUMENT ID		TECN	COMMENT
1.6±0.4±0.6	AAIJ	19J	LHCB	pp at 7, 8 TeV

$\phi_\parallel$ in $B^0 \to \omega K^*(892)^0$

VALUE	DOCUMENT ID		TECN	COMMENT
−1.83±0.29±0.32	AAIJ	19J	LHCB	pp at 7, 8 TeV

Γ_L/Γ in $B^0 \to \omega K_2^*(1430)^0$

VALUE	DOCUMENT ID		TECN	COMMENT
0.45±0.12±0.02	AUBERT	09H	BABR	$e^+e^- \to \Upsilon(4S)$

Γ_L/Γ in $B^0 \to K^{*0}\overline{K}^{*0}$

VALUE	DOCUMENT ID		TECN	COMMENT
0.74 ±0.05 OUR AVERAGE				
0.724±0.051±0.016	[1] AAIJ	19L	LHCB	pp at 7 and 8 TeV
0.80 $^{+0.10}_{-0.12}$ ±0.06	AUBERT	08I	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Untagged and time-integrated analysis within 150 MeV of the K^{*0} mass.

Γ_L/Γ in $B^0 \to \phi K^*(892)^0$

VALUE	DOCUMENT ID		TECN	COMMENT
0.497±0.017 OUR AVERAGE				
0.497±0.019±0.015	AAIJ	14AM	LHCB	pp at 7 TeV
0.499±0.030±0.018	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
0.494±0.034±0.013	AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.506±0.040±0.015	AUBERT	07D	BABR	Repl. by AUBERT 08BG
0.45 ±0.05 ±0.02	CHEN	05A	BELL	Repl. by PRIM 13
0.52 ±0.05 ±0.02	[1] AUBERT,B	04W	BABR	Repl. by AUBERT 07D
0.65 ±0.07 ±0.02	AUBERT	03V	BABR	Repl. by AUBERT,B 04W
0.41 ±0.10 ±0.04	CHEN	03B	BELL	Repl. by CHEN 05A

[1] AUBERT,B 04W also measures the fraction of parity-odd transverse contribution $f_\perp$ = 0.22 ± 0.05 ± 0.02 and the phases of the parity-even and parity-odd transverse amplitudes relative to the longitudinal amplitude.

$\Gamma_\perp/\Gamma$ in $B^0 \to \phi K^*(892)^0$

VALUE	DOCUMENT ID		TECN	COMMENT
0.224±0.015 OUR AVERAGE				
0.221±0.016±0.013	AAIJ	14AM	LHCB	pp at 7 TeV
0.238±0.026±0.008	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
0.212±0.032±0.013	AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

0.227 ± 0.038 ± 0.013	AUBERT	07D	BABR	Repl. by AUBERT 08BG
$0.31^{+0.06}_{-0.05}$ ± 0.02	[1] CHEN	05A	BELL	Repl. by PRIM 13
0.22 ± 0.05 ± 0.02	AUBERT,B	04W	BABR	Repl. by AUBERT 07D

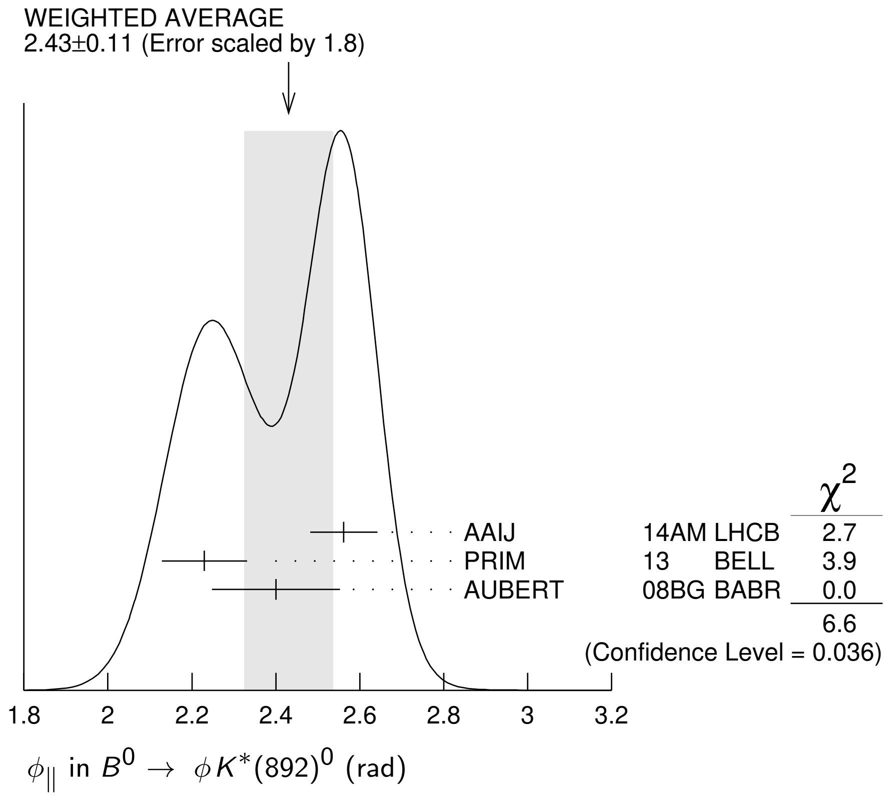
[1] This quantity was recalculated by the BELLE authors from numbers in the original paper.

$\phi_\parallel$ in $B^0 \to \phi K^*(892)^0$

VALUE (rad)	*DOCUMENT ID*		*TECN*	*COMMENT*
2.43 ± 0.11 OUR AVERAGE	Error includes scale factor of 1.8. See the ideogram below.			
2.562 ± 0.069 ± 0.040	AAIJ	14AM	LHCB	pp at 7 TeV
2.23 ± 0.10 ± 0.02	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
2.40 ± 0.13 ± 0.08	AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

2.31 ± 0.14 ± 0.08	AUBERT	07D	BABR	Repl. by AUBERT 08BG
$2.40^{+0.28}_{-0.24}$ ± 0.07	[1] CHEN	05A	BELL	Repl. by PRIM 13
$2.34^{+0.23}_{-0.20}$ ± 0.05	AUBERT,B	04W	BABR	Repl. by AUBERT 07D



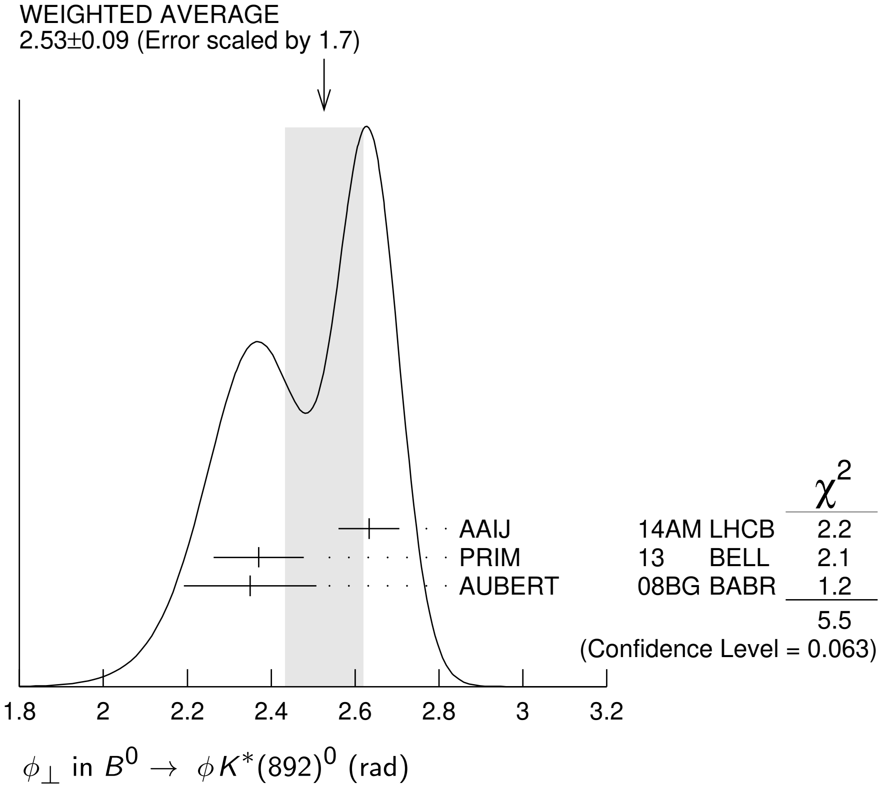
[1] This quantity was recalculated by the BELLE authors from numbers in the original paper.

$\phi_\perp$ in $B^0 \to \phi K^*(892)^0$

VALUE (rad)	*DOCUMENT ID*		*TECN*	*COMMENT*
2.53 ± 0.09 OUR AVERAGE	Error includes scale factor of 1.7. See the ideogram below.			
2.633 ± 0.062 ± 0.037	AAIJ	14AM	LHCB	pp at 7 TeV
2.37 ± 0.10 ± 0.04	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
2.35 ± 0.13 ± 0.09	AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

2.24 ±0.15 ±0.09	AUBERT	07D	BABR	Repl. by AUBERT 08BG
2.51 ±0.25 ±0.06	[1] CHEN	05A	BELL	Repl. by PRIM 13
2.47 ±0.25 ±0.05	AUBERT,B	04W	BABR	Repl. by AUBERT 07D



[1] This quantity was recalculated by the BELLE authors from numbers in the original paper.

$\delta_0(B^0 \rightarrow \phi K^*(892)^0)$

VALUE (rad)	*DOCUMENT ID*		*TECN*	*COMMENT*
2.88±0.10 OUR AVERAGE				
2.91±0.10±0.08	PRIM	13	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
2.82±0.15±0.09	AUBERT	08BG	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
2.78±0.17±0.09	AUBERT	07D	BABR	Repl. by AUBERT 08BG

A^0_{CP} in $B^0 \rightarrow \phi K^*(892)^0$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
−0.007±0.030 OUR AVERAGE				
−0.003±0.038±0.005	AAIJ	14AM	LHCB	pp at 7 TeV
−0.030±0.061±0.007	PRIM	13	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
0.01 ±0.07 ±0.02	AUBERT	08BG	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
−0.03 ±0.08 ±0.02	AUBERT	07D	BABR	Repl. by AUBERT 08BG
0.13 ±0.12 ±0.04	[1] CHEN	05A	BELL	Repl. by PRIM 13
−0.06 ±0.10 ±0.01	AUBERT,B	04W	BABR	Repl. by AUBERT 07D

[1] This quantity was recalculated by the BELLE authors from numbers in the original paper.

$A_{CP}^{\perp}$ in $B^0 \to \phi K^*(892)^0$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
-0.02 ± 0.06 OUR AVERAGE				
$0.047 \pm 0.074 \pm 0.009$	AAIJ	14AM	LHCB	pp at 7 TeV
$-0.14 \pm 0.11 \pm 0.01$	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
$-0.04 \pm 0.15 \pm 0.06$	AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.03 \pm 0.16 \pm 0.05$	AUBERT	07D	BABR	Repl. by AUBERT 08BG
$-0.20 \pm 0.18 \pm 0.04$	[1] CHEN	05A	BELL	Repl. by PRIM 13
$-0.10 \pm 0.24 \pm 0.05$	AUBERT,B	04W	BABR	Repl. by AUBERT 07D

[1] This quantity was recalculated by the BELLE authors from numbers in the original paper.

$\Delta\phi_{\parallel}$ in $B^0 \to \phi K^*(892)^0$

VALUE (rad)	*DOCUMENT ID*		*TECN*	*COMMENT*
0.05 ± 0.05 OUR AVERAGE				
$0.045 \pm 0.069 \pm 0.015$	AAIJ	14AM	LHCB	pp at 7 TeV
$-0.02 \pm 0.10 \pm 0.01$	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
$0.22 \pm 0.12 \pm 0.08$	AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.24 \pm 0.14 \pm 0.08$	AUBERT	07D	BABR	Repl. by AUBERT 08BG
$-0.32 \pm 0.27 \pm 0.07$	[1] CHEN	05A	BELL	Repl. by PRIM 13
$0.27 {}^{+0.20}_{-0.23} \pm 0.05$	AUBERT,B	04W	BABR	Repl. by AUBERT 07D

[1] This quantity was recalculated by the BELLE authors from numbers in the original paper.

$\Delta\phi_{\perp}$ in $B^0 \to \phi K^*(892)^0$

VALUE (rad)	*DOCUMENT ID*		*TECN*	*COMMENT*
0.08 ± 0.05 OUR AVERAGE				
$0.062 \pm 0.062 \pm 0.005$	AAIJ	14AM	LHCB	pp at 7 TeV
$0.05 \pm 0.10 \pm 0.02$	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
$0.21 \pm 0.13 \pm 0.08$	AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.19 \pm 0.15 \pm 0.08$	AUBERT	07D	BABR	Repl. by AUBERT 08BG
$-0.30 \pm 0.25 \pm 0.06$	[1] CHEN	05A	BELL	Repl. by PRIM 13
$0.36 \pm 0.25 \pm 0.05$	AUBERT,B	04W	BABR	Repl. by AUBERT 07D

[1] This quantity was recalculated by the BELLE authors from numbers in the original paper.

$\Delta\delta_0(B^0 \to \phi K^*(892)^0)$

VALUE (rad)	*DOCUMENT ID*		*TECN*	*COMMENT*
0.13 ± 0.09 OUR AVERAGE				
$0.08 \pm 0.10 \pm 0.01$	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
$0.27 \pm 0.14 \pm 0.08$	AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.21 \pm 0.17 \pm 0.08$	AUBERT	07D	BABR	Repl. by AUBERT 08BG

$\Delta\phi_{00}(B^0 \to \phi K_0^*(1430)^0)$

VALUE (rad)	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.28 \pm 0.42 \pm 0.04$	AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$

Γ_L/Γ in $B^0 \to \phi K_2^*(1430)^0$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.913^{+0.028}_{-0.050}$ OUR AVERAGE				
$0.918^{+0.029}_{-0.060}\pm0.012$	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
$0.901^{+0.046}_{-0.058}\pm0.037$	AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.853^{+0.061}_{-0.069}\pm0.036$	AUBERT	07D	BABR	Repl. by AUBERT 08BG

$\Gamma_\perp/\Gamma$ in $B^0 \to \phi K_2^*(1430)^0$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.027^{+0.031}_{-0.025}$ OUR AVERAGE Error includes scale factor of 1.1.				
$0.056^{+0.050}_{-0.035}\pm0.009$	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
$0.002^{+0.018}_{-0.002}\pm0.031$	AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.045^{+0.049}_{-0.040}\pm0.013$	AUBERT	07D	BABR	Repl. by AUBERT 08BG

$\phi_\parallel$ in $B^0 \to \phi K_2^*(1430)^0$

VALUE (rad)	*DOCUMENT ID*		*TECN*	*COMMENT*
4.0 ±0.4 OUR AVERAGE				
3.76±2.88±1.32	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
3.96±0.38±0.06	AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
2.90±0.39±0.06	AUBERT	07D	BABR	Repl. by AUBERT 08BG

$\phi_\perp$ in $B^0 \to \phi K_2^*(1430)^0$

VALUE (rad)	*DOCUMENT ID*		*TECN*	*COMMENT*
$4.45^{+0.43}_{-0.38}\pm0.13$	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$5.72^{+0.55}_{-0.87}\pm0.11$	AUBERT	07D	BABR	Repl. by AUBERT 08BG

$\delta_0(B^0 \to \phi K_2^*(1430)^0)$

VALUE (rad)	*DOCUMENT ID*		*TECN*	*COMMENT*
3.46±0.14 OUR AVERAGE				
3.53±0.11±0.19	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
3.41±0.13±0.13	AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$3.54^{+0.12}_{-0.14}\pm0.06$	AUBERT	07D	BABR	Repl. by AUBERT 08BG

A^0_{CP} in $B^0 \to \phi K^*_2(1430)^0$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
-0.03 ± 0.04 OUR AVERAGE				
$-0.016^{+0.066}_{-0.051}\pm0.008$	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
$-0.05 \pm0.06 \pm0.01$	AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$

$A^\perp_{CP}$ in $B^0 \to \phi K^*_2(1430)^0$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$-0.01^{+0.85}_{-0.67}\pm0.09$	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$

$\Delta\phi_\parallel(B^0 \to \phi K^*_2(1430)^0)$

VALUE (rad)	*DOCUMENT ID*		*TECN*	*COMMENT*
-0.9 ± 0.4 OUR AVERAGE				
$-0.02\pm1.08\pm1.01$	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
$-1.00\pm0.38\pm0.09$	AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$

$\Delta\phi_\perp(B^0 \to \phi K^*_2(1430)^0)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$-0.19\pm0.42\pm0.11$	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$

$\Delta\delta_0$ in $B^0 \to \phi K^*_2(1430)^0$

VALUE (rad)	*DOCUMENT ID*		*TECN*	*COMMENT*
0.08 ± 0.09 OUR AVERAGE				
$0.06\pm0.11\pm0.02$	PRIM	13	BELL	$e^+e^- \to \Upsilon(4S)$
$0.11\pm0.13\pm0.06$	AUBERT	08BG	BABR	$e^+e^- \to \Upsilon(4S)$

Γ_L/Γ in $B^0 \to K^*(892)^0\rho^0$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.173 ± 0.026 OUR AVERAGE				
$0.164\pm0.015\pm0.022$	AAIJ	19J	LHCB	pp at 7, 8 TeV
$0.40 \pm0.08 \pm0.11$	LEES	12K	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.57 \pm0.09 \pm0.08$	AUBERT,B	06G	BABR	Repl. by LEES 12K

$\Gamma_\perp/\Gamma$ in $B^0 \to K^*(892)^0\rho^0$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.401\pm0.016\pm0.037$	AAIJ	19J	LHCB	pp at 7, 8 TeV

A^0_{CP} in $B^0 \to K^*(892)^0\rho^0$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$-0.62\pm0.09\pm0.09$	AAIJ	19J	LHCB	pp at 7, 8 TeV

$A^\perp_{CP}$ in $B^0 \to K^*(892)^0\rho^0$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.050\pm0.039\pm0.015$	AAIJ	19J	LHCB	pp at 7, 8 TeV

$A^\parallel_{CP}$ in $B^0 \to K^*(892)^0\rho^0$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.188\pm0.037\pm0.022$	AAIJ	19J	LHCB	pp at 7, 8 TeV

ϕ_0 in $B^0 \to K^*(892)^0 \rho^0$

VALUE	DOCUMENT ID		TECN	COMMENT
$1.57 \pm 0.08 \pm 0.18$	AAIJ	19J	LHCB	pp at 7, 8 TeV

$\phi_\perp$ in $B^0 \to K^*(892)^0 \rho^0$

VALUE	DOCUMENT ID		TECN	COMMENT
$-2.365 \pm 0.032 \pm 0.054$	AAIJ	19J	LHCB	pp at 7, 8 TeV

$\phi_\parallel$ in $B^0 \to K^*(892)^0 \rho^0$

VALUE	DOCUMENT ID		TECN	COMMENT
$0.795 \pm 0.030 \pm 0.068$	AAIJ	19J	LHCB	pp at 7, 8 TeV

Γ_L/Γ in $B^0 \to K^{*+} \rho^-$

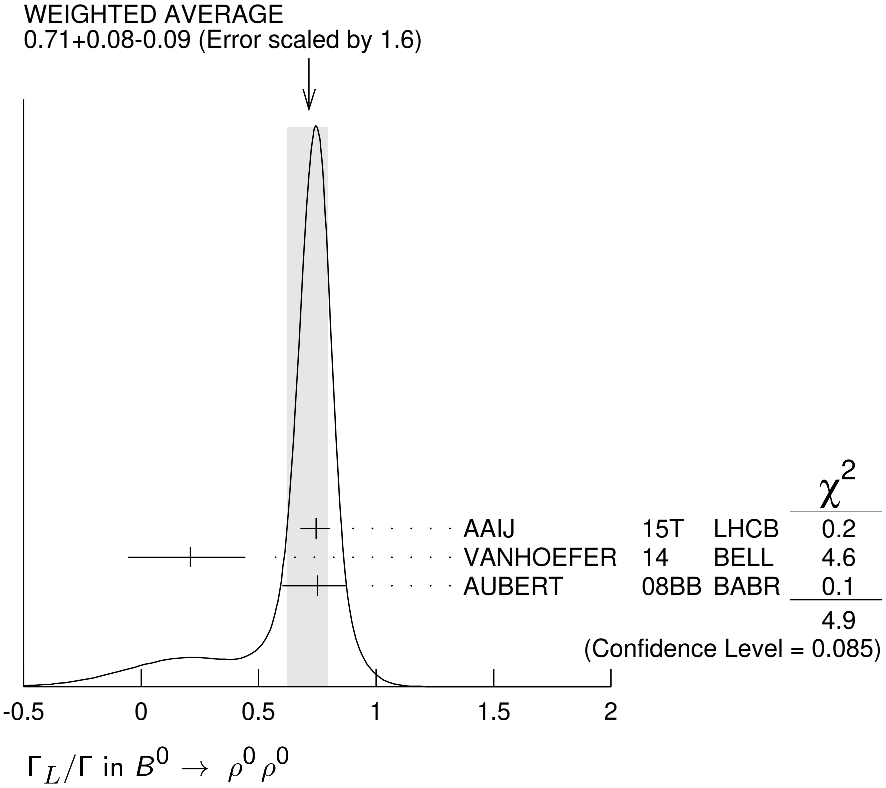
VALUE	DOCUMENT ID		TECN	COMMENT
$0.38 \pm 0.13 \pm 0.03$	LEES	12K	BABR	$e^+ e^- \to \Upsilon(4S)$

Γ_L/Γ in $B^0 \to \rho^+ \rho^-$

VALUE	DOCUMENT ID		TECN	COMMENT
$0.990^{+0.021}_{-0.019}$ OUR AVERAGE				
$0.988 \pm 0.012 \pm 0.023$	VANHOEFER	16	BELL	$e^+ e^- \to \Upsilon(4S)$
$0.992 \pm 0.024 ^{+0.026}_{-0.013}$	AUBERT	07BF	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.941 ^{+0.034}_{-0.040} \pm 0.030$	SOMOV	06	BELL	Repl. by VANHOEFER 16
$0.978 \pm 0.014 ^{+0.021}_{-0.029}$	AUBERT,B	05C	BABR	Repl. by AUBERT 07BF
$0.98 ^{+0.02}_{-0.08} \pm 0.03$	AUBERT	04G	BABR	Repl. by AUBERT,B 04R
$0.99 \pm 0.03 ^{+0.04}_{-0.03}$	AUBERT,B	04R	BABR	Repl. by AUBERT,B 05C

Γ_L/Γ in $B^0 \to \rho^0 \rho^0$

VALUE	DOCUMENT ID		TECN	COMMENT
$0.71 ^{+0.08}_{-0.09}$ OUR AVERAGE Error includes scale factor of 1.6. See the ideogram below.				
$0.745 ^{+0.048}_{-0.058} \pm 0.034$	AAIJ	15T	LHCB	pp at 7, 8 TeV
$0.21 ^{+0.18}_{-0.22} \pm 0.15$	VANHOEFER	14	BELL	$e^+ e^- \to \Upsilon(4S)$
$0.75 ^{+0.11}_{-0.14} \pm 0.05$	AUBERT	08BB	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.87 \pm 0.13 \pm 0.04$	AUBERT	07G	BABR	Repl. by AUBERT 08BB



Γ_L/Γ in $B^0 \to a_1(1260)^+ a_1(1260)^-$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.31±0.22±0.10	AUBERT	09AL	BABR	$e^+e^- \to \Upsilon(4S)$

Γ_L/Γ in $B^0 \to p\overline{p}K^*(892)^0$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
1.01±0.13±0.03	CHEN	08C	BELL	$e^+e^- \to \Upsilon(4S)$

Γ_L/Γ in $B^0 \to \Lambda\overline{\Lambda}K^*(892)^0$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.60±0.22±0.08	CHANG	09	BELL	$e^+e^- \to \Upsilon(4S)$

Γ_L/Γ in $B^0 \to K^*(892)^0\mu^+\mu^-$ $(0.04 < q^2 < 6.0\ \mathrm{GeV}^2/c^4)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.50±0.06±0.04	[1] AABOUD	18BY	ATLS	pp at 8 TeV

[1] A set of angular parameters obtained for this decay is also presented.

Γ_L/Γ in $B^0 \to K^*(892)^0 e^+e^-$ (at low q^2)

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.044±0.026±0.014	[1] AAIJ	20AO	LHCB	pp at 7, 8, 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.16 ±0.06 ±0.03	[2] AAIJ	15Z	LHCB	Repl. by AAIJ 20AO

[1] Determined in the effective dielectron invariant mass range $0.0008 < q^2 < 0.257\mathrm{GeV}^2/c^4$.

[2] Determined in the effective dielectron invariant mass range $0.002 < q^2 < 1.120\ \mathrm{GeV}^2/c^4$.

$A_T^{(2)}$ in $B^0 \rightarrow K^*(892)^0 e^+ e^-$ (at low q^2)

VALUE	DOCUMENT ID		TECN	COMMENT
$0.11 \pm 0.10 \pm 0.02$	[1] AAIJ	20AO	LHCB	pp at 7, 8, 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.23 \pm 0.23 \pm 0.05$	[2] AAIJ	15Z	LHCB	Repl. by AAIJ 20AO

[1] Determined in the effective dielectron invariant mass range $0.0008 < q^2 < 0.257 \mathrm{GeV}^2/c^4$.

[2] Determined in the effective dielectron invariant mass range $0.002 < q^2 < 1.120\ \mathrm{GeV}^2/c^4$.

A_T^{Im} in $B^0 \rightarrow K^*(892)^0 e^+ e^-$ (at low q^2)

VALUE	DOCUMENT ID		TECN	COMMENT
$0.02 \pm 0.10 \pm 0.01$	[1] AAIJ	20AO	LHCB	pp at 7, 8, 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.14 \pm 0.22 \pm 0.05$	[2] AAIJ	15Z	LHCB	Repl. by AAIJ 20AO

[1] Determined in the effective dielectron invariant mass range $0.0008 < q^2 < 0.257 \mathrm{GeV}^2/c^4$.

[2] Determined in the effective dielectron invariant mass range $0.002 < q^2 < 1.120\ \mathrm{GeV}^2/c^4$.

A_T^{Re} in $B^0 \rightarrow K^*(892)^0 e^+ e^-$ (at low q^2)

Related to A_{FB}, F_L by $A_T^{Re} = (4/3)\ A_{FB}\ /\ (1 - F_L)$.

VALUE	DOCUMENT ID		TECN	COMMENT
$-0.06 \pm 0.08 \pm 0.02$	[1] AAIJ	20AO	LHCB	pp at 7, 8, 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.10 \pm 0.18 \pm 0.05$	[2] AAIJ	15Z	LHCB	Repl. by AAIJ 20AO

[1] Determined in the effective dielectron invariant mass range $0.0008 < q^2 < 0.257 \mathrm{GeV}^2/c^4$.

[2] Determined in the effective dielectron invariant mass range $0.002 < q^2 < 1.120\ \mathrm{GeV}^2/c^4$.

See the related review(s):

$B^0 - \overline{B}^0$ Mixing

B^0-$\overline{B}^0$ MIXING PARAMETERS

For a discussion of B^0-$\overline{B}^0$ mixing see the note on "B^0-$\overline{B}^0$ Mixing" in the B^0 Particle Listings above.

χ_d is a measure of the time-integrated B^0-$\overline{B}^0$ mixing probability that a produced $B^0(\overline{B}^0)$ decays as a $\overline{B}^0(B^0)$. Mixing violates $\Delta B \neq 2$ rule.

$$\chi_d = \frac{x_d^2}{2(1+x_d^2)}$$

$$x_d = \frac{\Delta m_{B^0}}{\Gamma_{B^0}} = (m_{B^0_H} - m_{B^0_L})\ \tau_{B^0}\ ,$$

where H, L stand for heavy and light states of two B^0 CP eigenstates and $\tau_{B^0} = \frac{1}{0.5(\Gamma_{B^0_H} + \Gamma_{B^0_L})}$.

χ_d

This B^0-$\overline{B}^0$ mixing parameter is the probability (integrated over time) that a produced B^0 (or $\overline{B}^0$) decays as a $\overline{B}^0$ (or B^0), e.g. for inclusive lepton decays

$$\chi_d = \Gamma(B^0 \to \ell^- X \text{ (via } \overline{B}^0))/\Gamma(B^0 \to \ell^\pm X)$$
$$= \Gamma(\overline{B}^0 \to \ell^+ X \text{ (via } B^0))/\Gamma(\overline{B}^0 \to \ell^\pm X)$$

Where experiments have measured the parameter $r = \chi/(1-\chi)$, we have converted to χ. Mixing violates the $\Delta B \neq 2$ rule.

Note that the measurement of χ at energies higher than the $\Upsilon(4S)$ have not separated χ_d from χ_s where the subscripts indicate $B^0(\overline{b}d)$ or $B^0_s(\overline{b}s)$. They are listed in the $B^\pm/B^0/B^0_s/b$-baryon ADMIXTURE section.

The experiments at $\Upsilon(4S)$ make an assumption about the $B^0\overline{B}^0$ fraction and about the ratio of the $B^\pm$ and B^0 semileptonic branching ratios (usually that it equals one).

"OUR EVALUATION" is an average using rescaled values of the data listed below. The average and rescaling were performed by the Heavy Flavor Averaging Group (HFLAV) and are described at https://hflav.web.cern.ch/. The averaging/rescaling procedure takes into account correlations between the measurements, includes χ_d calculated from Δm_{B^0} and τ_{B^0}.

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
0.1858±0.0011 OUR EVALUATION				
0.182 ±0.015 OUR AVERAGE				
0.198 ±0.013 ±0.014		[1] BEHRENS 00B	CLE2	$e^+e^- \to \Upsilon(4S)$
0.16 ±0.04 ±0.04		[2] ALBRECHT 94	ARG	$e^+e^- \to \Upsilon(4S)$
0.149 ±0.023 ±0.022		[3] BARTELT 93	CLE2	$e^+e^- \to \Upsilon(4S)$
0.171 ±0.048		[4] ALBRECHT 92L	ARG	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	*CL%*	*DOCUMENT ID*	*TECN*	*COMMENT*
0.20 ±0.13 ±0.12		[5] ALBRECHT 96D	ARG	$e^+e^- \to \Upsilon(4S)$
0.19 ±0.07 ±0.09		[6] ALBRECHT 96D	ARG	$e^+e^- \to \Upsilon(4S)$
0.24 ±0.12		[7] ELSEN 90	JADE	e^+e^- 35–44 GeV
$0.158^{+0.052}_{-0.059}$		ARTUSO 89	CLEO	$e^+e^- \to \Upsilon(4S)$
0.17 ±0.05		[8] ALBRECHT 87I	ARG	$e^+e^- \to \Upsilon(4S)$
<0.19	90	[9] BEAN 87B	CLEO	$e^+e^- \to \Upsilon(4S)$
<0.27	90	[10] AVERY 84	CLEO	$e^+e^- \to \Upsilon(4S)$

[1] BEHRENS 00B uses high-momentum lepton tags and partially reconstructed $\overline{B}^0 \to D^{*+}\pi^-$, ρ^- decays to determine the flavor of the B meson.

[2] ALBRECHT 94 reports r=0.194 ± 0.062 ± 0.054. We convert to χ for comparison. Uses tagged events (lepton + pion from D^*).

[3] BARTELT 93 analysis performed using tagged events (lepton+pion from D^*). Using dilepton events they obtain $0.157 \pm 0.016^{+0.033}_{-0.028}$.

[4] ALBRECHT 92L is a combined measurement employing several lepton-based techniques. It uses all previous ARGUS data in addition to new data and therefore supersedes ALBRECHT 87I. A value of $r = 20.6 \pm 7.0\%$ is directly measured. The value can be used to measure $x = \Delta M/\Gamma = 0.72 \pm 0.15$ for the B_d meson. Assumes $f_{+-}/f_0 = 1.0 \pm 0.05$ and uses $\tau_{B^\pm}/\tau_{B^0} = (0.95 \pm 0.14)\ (f_{+-}/f_0)$.

[5] Uses $D^{*+}K^\pm$ correlations.

[6] Uses $(D^{*+}\ell^-)\ K^\pm$ correlations.

[7] These experiments see a combination of B_s and B_d mesons.

[8] ALBRECHT 87I is inclusive measurement with like-sign dileptons, with tagged B decays plus leptons, and one fully reconstructed event. Measures r=0.21 ± 0.08. We convert to χ for comparison. Superseded by ALBRECHT 92L.

[9] BEAN 87B measured $r <$ 0.24; we converted to χ.

[10] Same-sign dilepton events. Limit assumes semileptonic BR for B^+ and B^0 equal. If $B^0/B^\pm$ ratio <0.58, no limit exists. The limit was corrected in BEAN 87B from $r <$ 0.30 to $r <$ 0.37. We converted this limit to χ.

$\Delta m_{B^0} = m_{B^0_H} - m_{B^0_L}$

Δm_{B^0} is a measure of 2π times the B^0-$\overline{B}^0$ oscillation frequency in time-dependent mixing experiments.

"OUR EVALUATION" is an average using rescaled values of the data listed below. The average and rescaling were performed by the Heavy Flavor Averaging Group (HFLAV) and are described at https://hflav.web.cern.ch/. The averaging/rescaling procedure takes into account correlations between the measurements and includes Δm_d calculated from χ_d measured at $\Upsilon(4S)$.

VALUE ($10^{12}\ \hbar\ \mathrm{s}^{-1}$)	*DOCUMENT ID*	*TECN*	*COMMENT*
0.5065±0.0019 OUR EVALUATION			
$0.5050 \pm 0.0021 \pm 0.0010$	[1] AAIJ 16AV	LHCB	pp at 7, 8 TeV
$0.503 \pm 0.011 \pm 0.013$	[2] AAIJ 13CF	LHCB	pp at 7 TeV
$0.5156 \pm 0.0051 \pm 0.0033$	[3] AAIJ 13F	LHCB	pp at 7 TeV
$0.499 \pm 0.032 \pm 0.003$	[4] AAIJ 12I	LHCB	pp at 7 TeV
$0.506 \pm 0.020 \pm 0.016$	[5] ABAZOV 06W	D0	$p\overline{p}$ at 1.96 TeV
$0.511 \pm 0.007\ {}^{+0.007}_{-0.006}$	[6] AUBERT 06G	BABR	$e^+e^- \to \Upsilon(4S)$
$0.511 \pm 0.005 \pm 0.006$	[7] ABE 05B	BELL	$e^+e^- \to \Upsilon(4S)$
$0.531 \pm 0.025 \pm 0.007$	[8] ABDALLAH 03B	DLPH	$e^+e^- \to Z$
$0.492 \pm 0.018 \pm 0.013$	[9] AUBERT 03C	BABR	$e^+e^- \to \Upsilon(4S)$
$0.503 \pm 0.008 \pm 0.010$	[10] HASTINGS 03	BELL	$e^+e^- \to \Upsilon(4S)$
$0.509 \pm 0.017 \pm 0.020$	[11] ZHENG 03	BELL	$e^+e^- \to \Upsilon(4S)$
$0.516 \pm 0.016 \pm 0.010$	[12] AUBERT 02I	BABR	$e^+e^- \to \Upsilon(4S)$
$0.493 \pm 0.012 \pm 0.009$	[13] AUBERT 02J	BABR	$e^+e^- \to \Upsilon(4S)$
$0.497 \pm 0.024 \pm 0.025$	[14] ABBIENDI,G 00B	OPAL	$e^+e^- \to Z$
$0.503 \pm 0.064 \pm 0.071$	[15] ABE 99K	CDF	$p\overline{p}$ at 1.8 TeV
$0.500 \pm 0.052 \pm 0.043$	[16] ABE 99Q	CDF	$p\overline{p}$ at 1.8 TeV
$0.516 \pm 0.099\ {}^{+0.029}_{-0.035}$	[17] AFFOLDER 99C	CDF	$p\overline{p}$ at 1.8 TeV
$0.471\ {}^{+0.078}_{-0.068}\ {}^{+0.033}_{-0.034}$	[18] ABE 98C	CDF	$p\overline{p}$ at 1.8 TeV
$0.458 \pm 0.046 \pm 0.032$	[19] ACCIARRI 98D	L3	$e^+e^- \to Z$
$0.437 \pm 0.043 \pm 0.044$	[20] ACCIARRI 98D	L3	$e^+e^- \to Z$
$0.472 \pm 0.049 \pm 0.053$	[21] ACCIARRI 98D	L3	$e^+e^- \to Z$
$0.523 \pm 0.072 \pm 0.043$	[22] ABREU 97N	DLPH	$e^+e^- \to Z$
$0.493 \pm 0.042 \pm 0.027$	[20] ABREU 97N	DLPH	$e^+e^- \to Z$
$0.499 \pm 0.053 \pm 0.015$	[23] ABREU 97N	DLPH	$e^+e^- \to Z$
$0.480 \pm 0.040 \pm 0.051$	[19] ABREU 97N	DLPH	$e^+e^- \to Z$
$0.444 \pm 0.029\ {}^{+0.020}_{-0.017}$	[20] ACKERSTAFF 97U	OPAL	$e^+e^- \to Z$
$0.430 \pm 0.043\ {}^{+0.028}_{-0.030}$	[19] ACKERSTAFF 97V	OPAL	$e^+e^- \to Z$

0.482	±0.044	±0.024	[24] BUSKULIC	97D	ALEP	$e^+e^- \to Z$
0.404	±0.045	±0.027	[20] BUSKULIC	97D	ALEP	$e^+e^- \to Z$
0.452	±0.039	±0.044	[19] BUSKULIC	97D	ALEP	$e^+e^- \to Z$
0.539	±0.060	±0.024	[25] ALEXANDER	96V	OPAL	$e^+e^- \to Z$
0.567	±0.089	$^{+0.029}_{-0.023}$	[26] ALEXANDER	96V	OPAL	$e^+e^- \to Z$

• • • We do not use the following data for averages, fits, limits, etc. • • •

0.516	±0.016	±0.010	[27] AUBERT	02N	BABR	$e^+e^- \to \Upsilon(4S)$
0.494	±0.012	±0.015	[28] HARA	02	BELL	Repl. by ABE 05B
0.528	±0.017	±0.011	[29] TOMURA	02	BELL	Repl. by ABE 05B
0.463	±0.008	±0.016	[13] ABE	01D	BELL	Repl. by HASTINGS 03
0.444	±0.028	±0.028	[30] ACCIARRI	98D	L3	$e^+e^- \to Z$
0.497	±0.035		[31] ABREU	97N	DLPH	$e^+e^- \to Z$
0.467	±0.022	$^{+0.017}_{-0.015}$	[32] ACKERSTAFF	97V	OPAL	$e^+e^- \to Z$
0.446	±0.032		[33] BUSKULIC	97D	ALEP	$e^+e^- \to Z$
0.531	$^{+0.050}_{-0.046}$	±0.078	[34] ABREU	96Q	DLPH	Sup. by ABREU 97N
0.496	$^{+0.055}_{-0.051}$	±0.043	[19] ACCIARRI	96E	L3	Repl. by ACCIARRI 98D
0.548	±0.050	$^{+0.023}_{-0.019}$	[35] ALEXANDER	96V	OPAL	$e^+e^- \to Z$
0.496	±0.046		[36] AKERS	95J	OPAL	Repl. by ACKERSTAFF 97V
0.462	$^{+0.040}_{-0.053}$	$^{+0.052}_{-0.035}$	[19] AKERS	95J	OPAL	Repl. by ACKERSTAFF 97V
0.50	±0.12	±0.06	[22] ABREU	94M	DLPH	Sup. by ABREU 97N
0.508	±0.075	±0.025	[25] AKERS	94C	OPAL	Repl. by ALEXANDER 96V
0.57	±0.11	±0.02	[26] AKERS	94H	OPAL	Repl. by ALEXANDER 96V
0.50	$^{+0.07}_{-0.06}$	$^{+0.11}_{-0.10}$	[19] BUSKULIC	94B	ALEP	Sup. by BUSKULIC 97D
0.52	$^{+0.10}_{-0.11}$	$^{+0.04}_{-0.03}$	[26] BUSKULIC	93K	ALEP	Sup. by BUSKULIC 97D

[1] Uses semileptonic decays of $B^0 \to D^- \mu^+ \nu_\mu X$ and $B^0 \to D^{(*)-} \mu^+ \nu_\mu X$, where the D mesons are reconstructed in $D^- \to K^+ \pi^- \pi^-$ and $D^{(*)-} \to \overline{D}^0 \pi^-$ with $\overline{D}^0 \to K^+ \pi^-$.

[2] Uses semileptonic decays of $B^0 \to D^- \mu^+ \nu_\mu X$ where the D^- mesons are reconstructed in $D^- \to K^+ K^- \pi^-$.

[3] Measured using $B^0 \to D^- \pi^+$ and $B^0 \to J/\psi K^*(892)^0$ decays.

[4] Measured using $B^0 \to D^- \pi^+$.

[5] Uses opposite-side flavor-tagging with $B \to D^{(*)} \mu \nu_\mu X$ events.

[6] Measured using a simultaneous fit of the B^0 lifetime and $\overline{B}^0 B^0$ oscillation frequency Δm_d in the partially reconstructed $B^0 \to D^{*-} \ell \nu$ decays.

[7] Measurement performed using a combined fit of *CP*-violation, mixing and lifetimes.

[8] Events with a high transverse momentum lepton were removed and an inclusively reconstructed vertex was required.

[9] AUBERT 03C uses a sample of approximately 14,000 exclusively reconstructed $B^0 \to D^*(2010)^- \ell \nu$ and simultaneously measures the lifetime and oscillation frequency.

[10] HASTINGS 03 measurement based on the time evolution of dilepton events. It also reports $f_+/f_0 = 1.01 \pm 0.03 \pm 0.09$ and *CPT* violation parameters in B^0-$\overline{B}^0$ mixing.

[11] ZHENG 03 data analyzed using partially reconstructed $\overline{B}^0 \to D^{*-} \pi^+$ decay and a flavor tag based on the charge of the lepton from the accompanying B decay.

[12] Uses a tagged sample of fully-reconstructed neutral B decays at $\Upsilon(4S)$.

[13] Measured based on the time evolution of dilepton events in $\Upsilon(4S)$ decays.

[14] Data analyzed using partially reconstructed $\overline{B}^0 \rightarrow D^{*+} \ell^- \overline{\nu}$ decay and a combination of flavor tags from the rest of the event.

[15] Uses di-muon events.

[16] Uses jet-charge and lepton-flavor tagging.

[17] Uses $\ell^- D^{*+} - \ell$ events.

[18] Uses π-B in the same side.

[19] Uses ℓ-ℓ.

[20] Uses ℓ-Q_{hem}.

[21] Uses ℓ-ℓ with impact parameters.

[22] Uses $D^{*\pm}$-Q_{hem}.

[23] Uses $\pi_s^{\pm} \ell$-Q_{hem}.

[24] Uses $D^{*\pm}$-ℓ/Q_{hem}.

[25] Uses $D^{*\pm} \ell$-Q_{hem}.

[26] Uses $D^{*\pm}$-ℓ.

[27] AUBERT 02N result based on the same analysis and data sample reported in AUBERT 02I.

[28] Uses a tagged sample of B^0 decays reconstructed in the mode $B^0 \rightarrow D^* \ell \nu$.

[29] Uses a tagged sample of fully-reconstructed hadronic B^0 decays at $\Upsilon(4S)$.

[30] ACCIARRI 98D combines results from ℓ-ℓ, ℓ-Q_{hem}, and ℓ-ℓ with impact parameters.

[31] ABREU 97N combines results from $D^{*\pm}$-Q_{hem}, ℓ-Q_{hem}, $\pi_s^{\pm} \ell$-Q_{hem}, and ℓ-ℓ.

[32] ACKERSTAFF 97V combines results from ℓ-ℓ, ℓ-Q_{hem}, D^*-ℓ, and $D^{*\pm}$-Q_{hem}.

[33] BUSKULIC 97D combines results from $D^{*\pm}$-ℓ/Q_{hem}, ℓ-Q_{hem}, and ℓ-ℓ.

[34] ABREU 96Q analysis performed using lepton, kaon, and jet-charge tags.

[35] ALEXANDER 96V combines results from $D^{*\pm}$-ℓ and $D^{*\pm} \ell$-Q_{hem}.

[36] AKERS 95J combines results from charge measurement, $D^{*\pm} \ell$-Q_{hem} and ℓ-ℓ.

$x_d = \Delta m_{B^0}/\Gamma_{B^0}$

"OUR EVALUATION" is an average using rescaled values of the data listed below. The average and rescaling were performed by the Heavy Flavor Averaging Group (HFLAV) and are described at https://hflav.web.cern.ch/. The averaging/rescaling procedure takes into account correlations between the measurements and includes Δm_d calculated from χ_d measured at $\Upsilon(4S)$.

VALUE	*DOCUMENT ID*
0.769±0.004 OUR EVALUATION	

Re(λ_{CP} / $|\lambda_{CP}|$) Re(z)

The λ_{CP} characterizes B^0 and $\overline{B}^0$ decays to states of charmonium plus K_L^0. Parameter z is used to describe *CPT* violation in mixing, see the review on "*CP* Violation" in the reviews section.

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.047±0.022±0.003	[1] LEES	16E	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.014±0.035±0.034	[2] AUBERT,B	04C	BABR	Repl. by LEES 16E

[1] The first uncertainty is the uncertainty from Re(z) and the second uncertainty is from Re($\lambda/|\lambda|$).

[2] Corresponds to 90% confidence range [−0.072, 0.101].

$\Delta\Gamma$ Re(z)

VALUE (ps^{-1})	*DOCUMENT ID*		*TECN*	*COMMENT*
$-0.0071 \pm 0.0039 \pm 0.0020$	AUBERT	06T	BABR	$e^+e^- \to \Upsilon(4S)$

Re(z)

VALUE (units 10^{-2})	*DOCUMENT ID*		*TECN*	*COMMENT*
-4 ± 4 OUR AVERAGE Error includes scale factor of 1.4.				
$-6.5 \pm 2.8 \pm 1.4$	[1] LEES	16E	BABR	$e^+e^- \to \Upsilon(4S)$
$1.9 \pm 3.7 \pm 3.3$	[2] HIGUCHI	12	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0 \pm 12 \pm 1$	[3] HASTINGS	03	BELL	Repl. by HIGUCHI 12

[1] Measurement uses decays $B^0/\overline{B}^0 \to c\overline{c}K^0_S/K^0_L$.

[2] Measured using $B^0 \to J/\psi K^0_S$, $J/\psi K^0_L$, $D^-\pi^+$, $D^{*-}\pi^+$, $D^{*-}\rho^+$, and $D^{*-}\ell^+\nu$ decays.

[3] Measured using inclusive dilepton events from B^0 decay.

Im(z)

VALUE (units 10^{-2})	*DOCUMENT ID*		*TECN*	*COMMENT*
-0.8 ± 0.4 OUR AVERAGE				
$1.0 \pm 3.0 \pm 1.3$	[1] LEES	16E	BABR	$e^+e^- \to \Upsilon(4S)$
$-0.57 \pm 0.33 \pm 0.33$	[2] HIGUCHI	12	BELL	$e^+e^- \to \Upsilon(4S)$
$-1.39 \pm 0.73 \pm 0.32$	[3] AUBERT	06T	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$3.8 \pm 2.9 \pm 2.5$	[4] AUBERT,B	04C	BABR	Repl. by AUBERT 06T
$-3 \pm 1 \pm 3$	[5] HASTINGS	03	BELL	Repl. by HIGUCHI 12

[1] Measurement uses decays $B^0/\overline{B}^0 \to c\overline{c}K^0_S/K^0_L$.

[2] Measured using $B^0 \to J/\psi K^0_S$, $J/\psi K^0_L$, $D^-\pi^+$, $D^{*-}\pi^+$, $D^{*-}\rho^+$, and $D^{*-}\ell^+\nu$ decays.

[3] Measurement uses $B^0/\overline{B}^0 \to \ell^+X/\ell^-X$ decays. Assuming $\Delta\Gamma = 0$, the result becomes $\mathrm{Im(z)} = (-0.37 \pm 0.54) \times 10^{-2}$.

[4] Corresponds to 90% confidence range [−0.028, 0.104].

[5] Measured using inclusive dilepton events from B^0 decay.

CP VIOLATION PARAMETERS

$\mathrm{Re}(\epsilon_{B^0})/(1+|\epsilon_{B^0}|^2)$

CP impurity in B^0_d system. It is obtained from either $a_{\ell\ell}$, the charge asymmetry in like-sign dilepton events or a_{cp}, the time-dependent asymmetry of inclusive B^0 and $\overline{B}^0$ decays.

"OUR EVALUATION" is an average obtained by the Heavy Flavor Averaging Group (HFLAV) and described at https://hflav.web.cern.ch/. It is the result of a fit to B_d and B_s *CP* asymmetries, which includes the B_d measurements listed below and the B_s measurements listed in the B_s section, taking into account correlations between those measurements.

VALUE (units 10^{-3})	*DOCUMENT ID*	*TECN*	*COMMENT*
-0.5 ± 0.4 OUR EVALUATION			
-0.1 ± 0.4 OUR AVERAGE			
$-0.05 \pm 0.48 \pm 0.75$	[1] AAIJ 15F	LHCB	pp at 7, 8 TeV
$-0.975 \pm 0.875 \pm 0.475$	[2] LEES 15A	BABR	$e^+ e^- \to \Upsilon(4S)$
1.55 ± 1.05	[3] ABAZOV 14	D0	$p\overline{p}$ at 1.96 TeV
$0.15 \pm 0.42 {}^{+0.94}_{-0.81}$	[4] LEES 13N	BABR	$e^+ e^- \to \Upsilon(4S)$
$-1.7 \pm 1.1 \pm 0.4$	[5] ABAZOV 12AC	D0	$p\overline{p}$ at 1.96 TeV
$0.4 \pm 1.3 \pm 0.9$	[6] AUBERT 06T	BABR	$e^+ e^- \to \Upsilon(4S)$
$-0.3 \pm 2.0 \pm 2.1$	[7] NAKANO 06	BELL	$e^+ e^- \to \Upsilon(4S)$
$3.5 \pm 10.3 \pm 1.5$	[8] JAFFE 01	CLE2	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
-0.3 ± 1.3	[9] ABAZOV 11U	D0	Repl. by ABAZOV 14
$-2.3 \pm 1.1 \pm 0.8$	[10] ABAZOV 06S	D0	Repl. by ABAZOV 11U
$-14.7 \pm 6.7 \pm 5.7$	[11] AUBERT,B 04C	BABR	Repl. by AUBERT 06T
$1.2 \pm 2.9 \pm 3.6$	[2] AUBERT 02K	BABR	Repl. by LEES 15A
-3.2 ± 6.5	[12] BARATE 01D	ALEP	$e^+ e^- \to Z$
$4 \pm 18 \pm 3$	[13] BEHRENS 00B	CLE2	Repl. by JAFFE 01
$1.2 \pm 13.8 \pm 3.2$	[14] ABBIENDI 99J	OPAL	$e^+ e^- \to Z$
$2 \pm 7 \pm 3$	[15] ACKERSTAFF 97U	OPAL	$e^+ e^- \to Z$
< 45	[16] BARTELT 93	CLE2	$e^+ e^- \to \Upsilon(4S)$

[1] AAIJ 15F uses semileptonic B^0 decays in the inclusive final states $D^- \mu^+$ and $D^{*-} \mu^+$, where the D^- meson decays into the $K^+ \pi^- \pi^-$ final state, and the D^{*-} meson into the $\overline{D}^0 (\to K^+ \pi^-) \pi^-$ final state. Reports $A^d_{SL} = (-0.02 \pm 0.19 \pm 0.30)\%$, which equals to $4\mathrm{Re}(\epsilon_{B^0})/(1+|\epsilon_{B^0}|^2)$.

[2] Uses the charge asymmetry in like-sign dilepton events. LEES 15A reports $A^d_{SL} = (-3.9 \pm 3.5 \pm 1.9) \times 10^{-3}$.

[3] ABAZOV 14 uses the dimuon charge asymmetry with different impact parameters from which it reports $A^d_{SL} = (-0.62 \pm 0.42) \times 10^{-2}$.

[4] Uses $B^0 \to D^{*-} X \ell^+ \nu_\ell$ and a kaon-tagged sample which yields measurement of $A^d_{SL} = (0.06 \pm 0.17 {}^{+0.38}_{-0.32})\%$, corresponding to $\Delta_{CP} = 1 - |q/p| = (0.29 \pm 0.84 {}^{+1.88}_{-1.61}) \times 10^{-3}$.

[5] ABAZOV 12AC uses $B^0 \to D^- \mu^+ X$ and $B^0 \to D^*(2010)^- \mu^+ X$ decays without initial state flavor tagging which yields measurement of $A^d_{SL} = (6.8 \pm 4.5 \pm 1.4) \times 10^{-3}$.

[6] AUBERT 06T reports $|q/p| - 1 = (-0.8 \pm 2.7 \pm 1.9) \times 10^{-3}$. We convert to $(1 - |q/p|^2)/4$.

[7] Uses the charge asymmetry in like-sign dilepton events and reports $|q/p| = 1.0005 \pm 0.0040 \pm 0.0043$.

[8] JAFFE 01 finds $a_{\ell\ell} = 0.013 \pm 0.050 \pm 0.005$ and combines with the previous BEHRENS 00B independent measurement.

[9] ABAZOV 11U uses the dimuon charge asymmetry with different impact parameters from which it reports $A^d_{SL} = (-1.2 \pm 5.2) \times 10^{-3}$.

[10] Uses the dimuon charge asymmetry.

[11] AUBERT 04C reports $|q/p| = 1.029 \pm 0.013 \pm 0.011$ and we converted it to $(1 - |q/p|^2)/4$.

[12] BARATE 01D measured by investigating time-dependent asymmetries in semileptonic and fully inclusive B^0_d decays.

[13] BEHRENS 00B uses high-momentum lepton tags and partially reconstructed $\overline{B}^0 \to D^{*+} \pi^-$, ρ^- decays to determine the flavor of the B meson.

[14] Data analyzed using the time-dependent asymmetry of inclusive B^0 decay. The production flavor of B^0 mesons is determined using both the jet charge and the charge of secondary vertex in the opposite hemisphere.

[15] ACKERSTAFF 97U assumes *CPT* and is based on measuring the charge asymmetry in a sample of B^0 decays defined by lepton and Q_{hem} tags. If *CPT* is not invoked, $\text{Re}(\epsilon_B) = -0.006 \pm 0.010 \pm 0.006$ is found. The indirect *CPT* violation parameter is determined to $\text{Im}(\delta B) = -0.020 \pm 0.016 \pm 0.006$.

[16] BARTELT 93 finds $a_{\ell\ell} = 0.031 \pm 0.096 \pm 0.032$ which corresponds to $|a_{\ell\ell}| < 0.18$, which yields the above $|\text{Re}(\epsilon_{B^0})/(1+|\epsilon_{B^0}|^2)|$.

$A_{T/CP}$

$A_{T/CP}$ is defined as

$$\frac{P(\overline{B}^0 \to B^0) - P(B^0 \to \overline{B}^0)}{P(\overline{B}^0 \to B^0) + P(B^0 \to \overline{B}^0)},$$

the *CPT* invariant asymmetry between the oscillation probabilities $\text{P}(\overline{B}^0 \to B^0)$ and $\text{P}(B^0 \to \overline{B}^0)$.

VALUE	DOCUMENT ID		TECN	COMMENT
0.005±0.012±0.014	[1] AUBERT	02K	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] AUBERT 02K uses the charge asymmetry in like-sign dilepton events.

$A_{CP}(B^0 \to D^*(2010)^+ D^-)$

A_{CP} is defined as

$$\frac{B(\overline{B}^0 \to \overline{f}) - B(B^0 \to f)}{B(\overline{B}^0 \to \overline{f}) + B(B^0 \to f)},$$

the *CP*-violation charge asymmetry of exclusive B^0 and $\overline{B}^0$ decay.

VALUE	DOCUMENT ID		TECN	COMMENT
0.013±0.014 OUR AVERAGE				
0.008±0.014±0.006	AAIJ	20L	LHCB	pp at 7, 8, 13 TeV
0.06 ±0.05 ±0.02	ROHRKEN	12	BELL	$e^+ e^- \to \Upsilon(4S)$
0.008±0.048±0.013	AUBERT	09C	BABR	$e^+ e^- \to \Upsilon(4S)$
0.07 ±0.08 ±0.04	[1] AUSHEV	04	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
−0.12 ±0.06 ±0.02	AUBERT	07AI	BABR	Repl. by AUBERT 09C
−0.03 ±0.10 ±0.02	AUBERT,B	06A	BABR	Repl. by AUBERT 07AI
−0.03 ±0.11 ±0.05	AUBERT	03J	BABR	Repl. by AUBERT,B 06B

[1] Combines results from fully and partially reconstructed $B^0 \to D^{*\pm} D^{\mp}$ decays.

$A_{CP}(B^0 \to \overline{D}^0 \pi^0)$

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
0.42±2.05±1.22	BLOOMFIELD	22	BELL	$e^+ e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to [K^+ K^-]_D K^*(892)^0)$

VALUE	DOCUMENT ID		TECN	COMMENT
−0.05±0.10±0.01	AAIJ	19N	LHCB	pp at 7, 8, 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
−0.20±0.15±0.02	AAIJ	14BN	LHCB	Repl. by AAIJ 16S
−0.45±0.23±0.02	AAIJ	13L	LHCB	Repl. by AAIJ 14BN

$A_{CP}(B^0 \to [K^+\pi^-]_D K^*(892)^0)$

VALUE	DOCUMENT ID	TECN	COMMENT
0.047±0.027±0.010	AAIJ 19N	LHCB	pp at 7, 8, 13 TeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	DOCUMENT ID	TECN	COMMENT
−0.03 ±0.04 ±0.02	AAIJ 14BN	LHCB	Repl. by AAIJ 19N
−0.08 ±0.08 ±0.01	AAIJ 13L	LHCB	Repl. by AAIJ 14BN

$A_{CP}(B^0 \to [K^+\pi^-\pi^+\pi^-]_D K^*(892)^0)$

VALUE	DOCUMENT ID	TECN	COMMENT
0.037±0.032±0.010	AAIJ 19N	LHCB	pp at 7, 8, 13 TeV

$A_{CP}(B^0 \to [K^-\pi^+]_D K^*(892)^0)$

VALUE	DOCUMENT ID	TECN	COMMENT
0.19±0.19±0.01	AAIJ 19N	LHCB	pp at 7, 8, 13 TeV

$A_{CP}(B^0 \to [K^-\pi^+\pi^+\pi^-]_D K^*(892)^0)$

VALUE	DOCUMENT ID	TECN	COMMENT
−0.01±0.24±0.01	AAIJ 19N	LHCB	pp at 7, 8, 13 TeV

$R_d^+ = \Gamma(B^0 \to [\pi^+K^-]_D K^{*0}) / \Gamma(B^0 \to [\pi^-K^+]_D K^{*0})$

VALUE	DOCUMENT ID	TECN	COMMENT
0.064±0.021±0.002	AAIJ 19N	LHCB	pp at 7, 8, 13 TeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	DOCUMENT ID	TECN	COMMENT
0.06 ±0.03 ±0.01	AAIJ 14BN	LHCB	Repl. by AAIJ 19N

$R_d^- = \Gamma(\overline{B}^0 \to [\pi^-K^+]_D K^{*0}) / \Gamma(\overline{B}^0 \to [\pi^+K^-]_D K^{*0})$

VALUE	DOCUMENT ID	TECN	COMMENT
0.095±0.021±0.003	AAIJ 19N	LHCB	pp at 7, 8, 13 TeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	DOCUMENT ID	TECN	COMMENT
0.06 ±0.03 ±0.01	AAIJ 14BN	LHCB	Repl. by AAIJ 19N

$A_{CP}(B^0 \to [\pi^+\pi^-]_D K^*(892)^0)$

VALUE	DOCUMENT ID	TECN	COMMENT
−0.18±0.14±0.01	AAIJ 19N	LHCB	pp at 7, 8, 13 TeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	DOCUMENT ID	TECN	COMMENT
−0.09±0.22±0.02	AAIJ 14BN	LHCB	Repl. by AAIJ 16S

$A_{CP}(B^0 \to [\pi^+\pi^-\pi^+\pi^-]_D K^*(892)^0)$

VALUE	DOCUMENT ID	TECN	COMMENT
−0.03±0.15±0.01	AAIJ 19N	LHCB	pp at 7, 8, 13 TeV

$R_d^+ = \Gamma(B^0 \to [\pi^+K^-\pi^+\pi^-]_D K^{*0}) / \Gamma(B^0 \to [\pi^-K^+\pi^+\pi^-]_D K^{*0})$

VALUE	DOCUMENT ID	TECN	COMMENT
0.074±0.026±0.002	AAIJ 19N	LHCB	pp at 7, 8, 13 TeV

$R_d^- = \Gamma(\overline{B}^0 \to [\pi^-K^+\pi^+\pi^-]_D K^{*0}) / \Gamma(\overline{B}^0 \to [\pi^+K^-\pi^+\pi^-]_D K^{*0})$

VALUE	DOCUMENT ID	TECN	COMMENT
0.072±0.025±0.003	AAIJ 19N	LHCB	pp at 7, 8, 13 TeV

A_{CP} ($B^0 \to K^+\pi^-$)

VALUE	DOCUMENT ID		TECN	COMMENT
-0.0834 ± 0.0032 OUR AVERAGE				
$-0.0824 \pm 0.0033 \pm 0.0033$	AAIJ	21O	LHCB	pp at 13 TeV
$-0.084 \pm 0.004 \pm 0.003$	AAIJ	18O	LHCB	pp at 7, 8 TeV
$-0.083 \pm 0.013 \pm 0.004$	AALTONEN	14P	CDF	$p\overline{p}$ at 1.96 TeV
$-0.069 \pm 0.014 \pm 0.007$	DUH	13	BELL	$e^+e^- \to \Upsilon(4S)$
$-0.107 \pm 0.016 {}^{+0.006}_{-0.004}$	LEES	13D	BABR	$e^+e^- \to \Upsilon(4S)$
-0.04 ± 0.16	[1] CHEN	00	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.080 \pm 0.007 \pm 0.003$	AAIJ	13AX	LHCB	Repl. by AAIJ 18O
$-0.088 \pm 0.011 \pm 0.008$	AAIJ	12V	LHCB	Repl. by AAIJ 13AX
$-0.086 \pm 0.023 \pm 0.009$	AALTONEN	11N	CDF	Repl. by AALTONEN 14P
$-0.094 \pm 0.018 \pm 0.008$	LIN	08	BELL	Repl. by DUH 13
$-0.107 \pm 0.018 {}^{+0.007}_{-0.004}$	AUBERT	07AF	BABR	Repl. by LEES 13D
$-0.013 \pm 0.078 \pm 0.012$	ABULENCIA,A	06D	CDF	Repl. by AALTONEN 11N
$-0.088 \pm 0.035 \pm 0.013$	[2] CHAO	05A	BELL	Repl. by CHAO 04B
$-0.133 \pm 0.030 \pm 0.009$	[3] AUBERT,B	04K	BABR	Repl. by AUBERT 07AF
$-0.101 \pm 0.025 \pm 0.005$	[4] CHAO	04B	BELL	Repl. by LIN 08
$-0.07 \pm 0.08 \pm 0.02$	[5] AUBERT	02D	BABR	Repl. by AUBERT 02Q
$-0.102 \pm 0.050 \pm 0.016$	[6] AUBERT	02Q	BABR	Repl. by AUBERT,B 04K
$-0.06 \pm 0.09 {}^{+0.01}_{-0.02}$	[7] CASEY	02	BELL	Repl. by CHAO 04B
$0.044 {}^{+0.186}_{-0.167} {}^{+0.018}_{-0.021}$	[8] ABE	01K	BELL	Repl. by CASEY 02
$-0.19 \pm 0.10 \pm 0.03$	[9] AUBERT	01E	BABR	Repl. by AUBERT 02Q

[1] Corresponds to 90% confidence range $-0.30 < A_{CP} < 0.22$.

[2] Corresponds to a 90% CL interval of $-0.15 < A_{CP} < -0.03$.

[3] Based on a total signal yield of $\mathrm{N}(K^-\pi^+) + \mathrm{N}(K^+\pi^-) = 1606 \pm 51$ events.

[4] CHAO 04B reports significance of 3.9 standard deviation for deviation of A_{CP} from zero.

[5] Corresponds to 90% confidence range $-0.21 < A_{CP} < 0.07$.

[6] Corresponds to 90% confidence range $-0.188 < A_{CP} < -0.016$.

[7] Corresponds to 90% confidence range $-0.21 < A_{CP} < +0.09$.

[8] Corresponds to 90% confidence range $-0.25 < A_{CP} < 0.37$.

[9] Corresponds to 90% confidence range $-0.35 < A_{CP} < -0.03$.

$A_{CP}(B^0 \to \eta' K^*(892)^0)$

VALUE	DOCUMENT ID		TECN	COMMENT
-0.07 ± 0.18 OUR AVERAGE				
$-0.22 \pm 0.29 \pm 0.07$	SATO	14	BELL	$e^+e^- \to \Upsilon(4S)$
$0.02 \pm 0.23 \pm 0.02$	DEL-AMO-SA..	10A	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.08 \pm 0.25 \pm 0.02$	[1] AUBERT	07E	BABR	Repl. by DEL-AMO-SANCHEZ 10A

[1] Reports A_{CP} with the opposite sign convention.

$A_{CP}(B^0 \to \eta' K_0^*(1430)^0)$

VALUE	DOCUMENT ID		TECN	COMMENT
$-0.19 \pm 0.17 \pm 0.02$	DEL-AMO-SA..	10A	BABR	$e^+e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to \eta' K_2^*(1430)^0)$

VALUE	DOCUMENT ID	TECN	COMMENT
0.14±0.18±0.02	DEL-AMO-SA..10A	BABR	$e^+e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to \eta K^*(892)^0)$

VALUE	DOCUMENT ID		TECN	COMMENT
0.19±0.05 OUR AVERAGE				
0.17±0.08±0.01	WANG	07B	BELL	$e^+e^- \to \Upsilon(4S)$
0.21±0.06±0.02	AUBERT,B	06H	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.02±0.11±0.02	AUBERT,B	04D	BABR	Repl. by AUBERT,B 06H

$A_{CP}(B^0 \to \eta K_0^*(1430)^0)$

VALUE	DOCUMENT ID		TECN	COMMENT
0.06±0.13±0.02	AUBERT,B	06H	BABR	$e^+e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to \eta K_2^*(1430)^0)$

VALUE	DOCUMENT ID		TECN	COMMENT
−0.07±0.19±0.02	AUBERT,B	06H	BABR	$e^+e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to b_1 K^+)$

VALUE	DOCUMENT ID		TECN	COMMENT
−0.07±0.12±0.02	AUBERT	07BI	BABR	$e^+e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to \omega K^{*0})$

VALUE	DOCUMENT ID		TECN	COMMENT
0.45±0.25±0.02	AUBERT	09H	BABR	$e^+e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to \omega (K\pi)_0^{*0})$

VALUE	DOCUMENT ID		TECN	COMMENT
−0.07±0.09±0.02	AUBERT	09H	BABR	$e^+e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to \omega K_2^*(1430)^0)$

VALUE	DOCUMENT ID		TECN	COMMENT
−0.37±0.17±0.02	AUBERT	09H	BABR	$e^+e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to K^+\pi^-\pi^0)$

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
0 ± 6 OUR AVERAGE				
$-3.0^{+4.5}_{-5.1}\pm5.5$	[1] AUBERT	08AQ	BABR	$e^+e^- \to \Upsilon(4S)$
7 ±11 ±1	[2] CHANG	04	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Uses Dalitz plot analysis of $B^0 \to K^+\pi^-\pi^0$ decays.

[2] Corresponds to 90% confidence range $-0.12 < A^{CP} < 0.26$.

$A_{CP}(B^0 \to \rho^- K^+)$

VALUE	DOCUMENT ID		TECN	COMMENT
0.20±0.11 OUR AVERAGE				
0.20±0.09±0.08	[1] LEES	11	BABR	$e^+e^- \to \Upsilon(4S)$
$0.22^{+0.22}_{-0.23}{}^{+0.06}_{-0.02}$	[2] CHANG	04	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$0.11^{+0.14}_{-0.15} \pm 0.07$	[1] AUBERT	08AQ	BABR	Repl. by LEES 11
$-0.28 \pm 0.17 \pm 0.08$	[3] AUBERT	03T	BABR	Repl. by AUBERT 08AQ

[1] Uses Dalitz plot analysis of $B^0 \to K^+ \pi^- \pi^0$ decays.

[2] Corresponds to 90% confidence range $-0.18 < A_{CP} < 0.64$.

[3] The result reported corresponds to $-A_{CP}$.

$A_{CP}(B^0 \to \rho(1450)^- K^+)$

VALUE	DOCUMENT ID		TECN	COMMENT
$-0.10 \pm 0.32 \pm 0.09$	[1] LEES	11	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Uses Dalitz plot analysis of $B^0 \to K^+ \pi^- \pi^0$ decays.

$A_{CP}(B^0 \to \rho(1700)^- K^+)$

VALUE	DOCUMENT ID		TECN	COMMENT
$-0.36 \pm 0.57 \pm 0.23$	[1] LEES	11	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Uses Dalitz plot analysis of $B^0 \to K^+ \pi^- \pi^0$ decays.

$A_{CP}(B^0 \to K^+ \pi^- \pi^0 \text{nonresonant})$

VALUE	DOCUMENT ID		TECN	COMMENT
$0.10 \pm 0.16 \pm 0.08$	[1] LEES	11	BABR	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$0.23^{+0.19}_{-0.27}{}^{+0.11}_{-0.10}$	[1] AUBERT	08AQ	BABR	Repl. by LEES 11

[1] Uses Dalitz plot analysis of $B^0 \to K^+ \pi^- \pi^0$ decays. The quoted value is only for the flat part of the non-resonant component.

$A_{CP}(B^0 \to K^0 \pi^+ \pi^-)$

VALUE	DOCUMENT ID		TECN	COMMENT
$-0.01 \pm 0.05 \pm 0.01$	[1] AUBERT	09AU	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Uses Dalitz plot analysis of $B^0 \to K^0 \pi^+ \pi^-$ decays and the first of two equivalent solutions is used.

$A_{CP}(B^0 \to K^*(892)^+ \pi^-)$

VALUE	DOCUMENT ID		TECN	COMMENT
-0.27 ± 0.04 OUR AVERAGE				
$-0.308 \pm 0.060 \pm 0.016$	[1] AAIJ	18F	LHCB	pp at 7, 8 TeV
$-0.29 \pm 0.11 \pm 0.02$	[2] LEES	11	BABR	$e^+ e^- \to \Upsilon(4S)$
$-0.21 \pm 0.10 \pm 0.02$	[3,4] AUBERT	09AU	BABR	$e^+ e^- \to \Upsilon(4S)$
$-0.21 \pm 0.11 \pm 0.07$	[5] DALSENO	09	BELL	$e^+ e^- \to \Upsilon(4S)$
$0.26^{+0.33}_{-0.34}{}^{+0.10}_{-0.08}$	[6] EISENSTEIN	03	CLE2	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$-0.19^{+0.20}_{-0.15} \pm 0.04$	[2] AUBERT	08AQ	BABR	Repl. by LEES 11
$-0.11 \pm 0.14 \pm 0.05$	[3] AUBERT	06I	BABR	Repl. by AUBERT 09AU
$0.23 \pm 0.18^{+0.09}_{-0.06}$	AUBERT,B	04O	BABR	Repl. by AUBERT 06I

[1] Uses Dalitz plot analysis of the $B^0 \to K^0_S \pi^+ \pi^-$ final state decays.

[2] Uses Dalitz plot analysis of $B^0 \to K^+ \pi^- \pi^0$ decays.

[3] Uses Dalitz plot analysis of $B^0 \to K^0\pi^+\pi^-$ decays.
[4] The first of two equivalent solutions is used.
[5] Uses Dalitz plot analysis of $B^0 \to K^0\pi^+\pi^-$ decays and the first of two consistent solutions that may be preferred.
[6] Corresponds to 90% confidence range $-0.31 < A_{CP} < 0.78$.

$A_{CP}(B^0 \to (K\pi)_0^{*+}\pi^-)$

VALUE	DOCUMENT ID		TECN	COMMENT
0.02 ±0.04 OUR AVERAGE				
$-0.032\pm0.047\pm0.031$	[1] AAIJ	18F	LHCB	pp at 7, 8 TeV
$0.07\pm0.14\pm0.01$	[2] LEES	11	BABR	$e^+e^- \to \Upsilon(4S)$
$0.09\pm0.07\pm0.03$	[3] AUBERT	09AU	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.17\ ^{+0.11}_{-0.16}\ \pm0.22$	[2] AUBERT	08AQ	BABR	Repl. by LEES 11

[1] Uses Dalitz plot analysis of the $B^0 \to K^0_S\pi^+\pi^-$ final states decays.
[2] Uses Dalitz plot analysis of $B^0 \to K^+\pi^-\pi^0$ decays.
[3] Uses Dalitz plot analysis of $B^0 \to K^0\pi^+\pi^-$ decays and the first of two equivalent solutions is used.

$A_{CP}(B^0 \to K_2^*(1430)^+\pi^-)$

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{-0.29\pm0.22\pm0.09}$	[1] AAIJ	18F	LHCB	pp at 7, 8 TeV

[1] Uses Dalitz plot analysis of the $B^0 \to K^0_S\pi^+\pi^-$ final state decays.

$A_{CP}(B^0 \to K^*(1680)^+\pi^-)$

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{-0.07\pm0.13\pm0.04}$	[1] AAIJ	18F	LHCB	pp at 7, 8 TeV

[1] Uses Dalitz plot analysis of the $B^0 \to K^0_S\pi^+\pi^-$ final state decays.

$A_{CP}(B^0 \to f_0(980)K^0_S)$

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.28\pm0.27\pm0.15}$	[1] AAIJ	18F	LHCB	pp at 7, 8 TeV

[1] Uses Dalitz plot analysis of the $B^0 \to K^0_S\pi^+\pi^-$ final state decays.

$A_{CP}(B^0 \to (K\pi)_0^{*0}\pi^0)$

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{-0.15\pm0.10\pm0.04}$	[1] LEES	11	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.22\pm0.12\ ^{+0.30}_{-0.29}$	[1] AUBERT	08AQ	BABR	Repl. by LEES 11

[1] Uses Dalitz plot analysis of $B^0 \to K^+\pi^-\pi^0$ decays.

$A_{CP}(B^0 \to K^{*0}\pi^0)$

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{-0.15\pm0.12\pm0.04}$	[1] LEES	11	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.09\ ^{+0.21}_{-0.24}\pm0.09$	[1] AUBERT	08AQ	BABR	Repl. by LEES 11

[1] Uses Dalitz plot analysis of $B^0 \to K^+\pi^-\pi^0$ decays.

$A_{CP}(B^0 \to K^*(892)^0 \pi^+ \pi^-)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.07±0.04±0.03	AUBERT	07AS	BABR	$e^+ e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to K^*(892)^0 \rho^0)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
−0.06±0.09±0.02	LEES	12K	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.09±0.19±0.02	AUBERT,B	06G	BABR	Repl. by LEES 12K

$A_{CP}(B^0 \to K^{*0} f_0(980))$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.07±0.10±0.02	LEES	12K	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
−0.17±0.28±0.02	AUBERT,B	06G	BABR	Repl. by LEES 12K

$A_{CP}(B^0 \to K^{*+} \rho^-)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.21±0.15±0.02	LEES	12K	BABR	$e^+ e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to K^*(892)^0 K^+ K^-)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.01±0.05±0.02	AUBERT	07AS	BABR	$e^+ e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to a_1^- K^+)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
−0.16±0.12±0.01	AUBERT	08F	BABR	$e^+ e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to K^0 K^0)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{-0.58^{+0.73}_{-0.66}\pm0.04}$	LIN	07	BELL	$e^+ e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to K^*(892)^0 \phi)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.00 ±0.04 OUR AVERAGE				
−0.007±0.048±0.021	PRIM	13	BELL	$e^+ e^- \to \Upsilon(4S)$
0.01 ±0.06 ±0.03	AUBERT	08BG	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
−0.03 ±0.07 ±0.03	AUBERT	07D	BABR	Repl. by AUBERT 08BG
0.02 ±0.09 ±0.02	[1] CHEN	05A	BELL	Repl. by PRIM 13
−0.01 ±0.09 ±0.02	AUBERT,B	04W	BABR	Repl. by AUBERT 07D
0.04 ±0.12 ±0.02	AUBERT	03V	BABR	Repl. by AUBERT 04W
$0.07 \pm0.15 {}^{+0.05}_{-0.03}$	[2] CHEN	03B	BELL	Repl. by CHEN 05A
0.00 ±0.27 ±0.03	[3] AUBERT	02E	BABR	Repl. by AUBERT 03V

[1] Corresponds to 90% confidence range $-0.14 < A_{CP} < 0.17$.

[2] Corresponds to 90% confidence range $-0.18 < A_{CP} < 0.33$.

[3] Corresponds to 90% confidence range $-0.44 < A_{CP} < 0.44$.

$A_{CP}(B^0 \to K^*(892)^0 K^- \pi^+)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.22 \pm 0.33 \pm 0.20}$	AUBERT	07AS	BABR	$e^+ e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to \phi(K\pi)^{*0}_0)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.12 \pm 0.08}$ **OUR AVERAGE**				
$0.093 \pm 0.094 \pm 0.017$	PRIM	13	BELL	$e^+ e^- \to \Upsilon(4S)$
$0.20 \pm 0.14 \pm 0.06$	AUBERT	08BG	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.17 \pm 0.15 \pm 0.03$	AUBERT	07D	BABR	Repl. by AUBERT 08BG

$A_{CP}(B^0 \to \phi K^*_2(1430)^0)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{-0.11 \pm 0.10}$ **OUR AVERAGE**				
$-0.155^{+0.152}_{-0.133} \pm 0.033$	PRIM	13	BELL	$e^+ e^- \to \Upsilon(4S)$
$-0.08 \pm 0.12 \pm 0.05$	AUBERT	08BG	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.12 \pm 0.14 \pm 0.04$	AUBERT	07D	BABR	Repl. by AUBERT 08BG

$A_{CP}(B^0 \to K^*(892)^0 \gamma)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{-0.006 \pm 0.011}$ **OUR AVERAGE**				
$-0.013 \pm 0.017 \pm 0.004$	[1] HORIGUCHI	17	BELL	$e^+ e^- \to \Upsilon(4S)$
$0.008 \pm 0.017 \pm 0.009$	AAIJ	13	LHCB	pp at 7 TeV
$-0.016 \pm 0.022 \pm 0.007$	AUBERT	09AO	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Uses B($\Upsilon(4S) \to B^+ B^-$) = $(51.4 \pm 0.6)\%$ and B($\Upsilon(4S) \to B^0 \overline{B}^0$) = $(48.6 \pm 0.6)\%$.

$A_{CP}(B^0 \to K^*_2(1430)^0 \gamma)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{-0.08 \pm 0.15 \pm 0.01}$	AUBERT,B	04U	BABR	$e^+ e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to X_s \gamma)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{-0.0094 \pm 0.0174 \pm 0.0047}$	[1] WATANUKI	19	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Using a sum-of-exclusive technique with $m_{X_s} < 2.8$ GeV/c^2.

$A_{CP}(B^0 \to \rho^+ \pi^-)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.13 \pm 0.06}$ **OUR AVERAGE** Error includes scale factor of 1.1.				
$0.09^{+0.05}_{-0.06} \pm 0.04$	[1] LEES	13J	BABR	$e^+ e^- \to \Upsilon(4S)$
$0.21 \pm 0.08 \pm 0.04$	[1] KUSAKA	07	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.03 \pm 0.07 \pm 0.04$	AUBERT	07AA	BABR	Repl. by LEES 13J
$-0.02 \pm 0.16^{+0.05}_{-0.02}$	WANG	05	BELL	Repl. by KUSAKA 07
$-0.18 \pm 0.08 \pm 0.03$	AUBERT	03T	BABR	Repl. by AUBERT 07AA

[1] Uses time-dependent Dalitz plot analysis of $B^0 \to \pi^+ \pi^- \pi^0$ decays.

$A_{CP}(B^0 \to \rho^- \pi^+)$

VALUE	DOCUMENT ID		TECN	COMMENT
$-$0.08±0.08 OUR AVERAGE				
$-0.12 \pm 0.08 ^{+0.04}_{-0.05}$	[1] LEES	13J	BABR	$e^+ e^- \to \Upsilon(4S)$
$0.08 \pm 0.16 \pm 0.11$	[1] KUSAKA	07	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.37 \pm 0.16 ^{+0.09}_{-0.10}$	AUBERT	07AA	BABR	Repl. by LEES 13J
$-0.53 \pm 0.29 ^{+0.09}_{-0.04}$	WANG	05	BELL	Repl. by KUSAKA 07

[1] Uses time-dependent Dalitz plot analysis of $B^0 \to \pi^+ \pi^- \pi^0$ decays.

$A_{CP}(B^0 \to a_1(1260)^{\pm} \pi^{\mp})$

VALUE	DOCUMENT ID		TECN	COMMENT
$-$0.07±0.06 OUR AVERAGE				
$-0.06 \pm 0.05 \pm 0.07$	DALSENO	12	BELL	$e^+ e^- \to \Upsilon(4S)$
$-0.07 \pm 0.07 \pm 0.02$	AUBERT	07O	BABR	$e^+ e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to b_1^- \pi^+)$

VALUE	DOCUMENT ID		TECN	COMMENT
$-$0.05±0.10±0.02	AUBERT	07BI	BABR	$e^+ e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to p \overline{p} K^*(892)^0)$

VALUE	DOCUMENT ID		TECN	COMMENT
0.05±0.12 OUR AVERAGE				
$-0.08 \pm 0.20 \pm 0.02$	CHEN	08C	BELL	$e^+ e^- \to \Upsilon(4S)$
$0.11 \pm 0.13 \pm 0.06$	AUBERT	07AV	BABR	$e^+ e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to p \overline{\Lambda} \pi^-)$

VALUE	DOCUMENT ID		TECN	COMMENT
0.04±0.07 OUR AVERAGE				
$0.10 \pm 0.10 \pm 0.02$	AUBERT	09AC	BABR	$e^+ e^- \to \Upsilon(4S)$
$-0.02 \pm 0.10 \pm 0.03$	WANG	07C	BELL	$e^+ e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to K^{*0} \ell^+ \ell^-)$

VALUE	DOCUMENT ID		TECN	COMMENT
$-$0.05±0.10 OUR AVERAGE				
$0.02 \pm 0.20 \pm 0.02$	AUBERT	09T	BABR	$e^+ e^- \to \Upsilon(4S)$
$-0.08 \pm 0.12 \pm 0.02$	WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to K^{*0} e^+ e^-)$

VALUE	DOCUMENT ID		TECN	COMMENT
$-$0.21±0.19±0.02	WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$

$A_{CP}(B^0 \to K^{*0} \mu^+ \mu^-)$

VALUE	DOCUMENT ID		TECN	COMMENT
$-$0.034±0.024 OUR AVERAGE				
$-0.035 \pm 0.024 \pm 0.003$	AAIJ	14AN	LHCB	pp at 7, 8 TeV
$0.00 \pm 0.15 \pm 0.03$	WEI	09A	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.072 \pm 0.040 \pm 0.005$	AAIJ	13E	LHCB	Repl. by AAIJ 14AN

$C_{D^*(2010)^- D^+}$ ($B^0 \to D^*(2010)^- D^+$)

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{-0.02 \pm 0.08}$ **OUR AVERAGE**				
$-0.028 \pm 0.130 \pm 0.026$	[1] AAIJ	20L	LHCB	pp at 7, 8, 13 TeV
$-0.13 \pm 0.16 \pm 0.05$	[2] ROHRKEN	12	BELL	$e^+e^- \to \Upsilon(4S)$
$0.00 \pm 0.17 \pm 0.03$	AUBERT	09C	BABR	$e^+e^- \to \Upsilon(4S)$
$0.23 \pm 0.25 \pm 0.06$	[3] AUSHEV	04	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	DOCUMENT ID		TECN	COMMENT
$0.23 \pm 0.15 \pm 0.04$	AUBERT	07AI	BABR	Repl. by AUBERT 09C
$0.17 \pm 0.24 \pm 0.04$	AUBERT,B	05Z	BABR	Repl. by AUBERT 07AI
$-0.22 \pm 0.37 \pm 0.10$	AUBERT	03J	BABR	Repl. by AUBERT,B 05Z

[1] AAIJ 20L reports the measurements of $\mathrm{C} = -0.059 \pm 0.092 \pm 0.020$ and $\Delta\mathrm{C} = -0.031 \pm 0.092 \pm 0.016$ such that $C_{D^*(2010)^- D^+} = \mathrm{C} - \Delta\mathrm{C}$.

[2] ROHRKEN 12 reports the measurements of $\mathrm{C} = -0.01 \pm 0.11 \pm 0.04$ and $\Delta\mathrm{C} = 0.12 \pm 0.11 \pm 0.03$ such that $C_{D^*(2010)^- D^+} = \mathrm{C} - \Delta\mathrm{C}$.

[3] Combines results from fully and partially reconstructed $B^0 \to D^{*\pm} D^{\mp}$ decays.

$S_{D^*(2010)^- D^+}$ ($B^0 \to D^*(2010)^- D^+$)

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{-0.83 \pm 0.09}$ **OUR AVERAGE**				
$-0.880 \pm 0.107 \pm 0.022$	[1] AAIJ	20L	LHCB	pp at 7, 8, 13 TeV
$-0.65 \pm 0.22 \pm 0.07$	[2] ROHRKEN	12	BELL	$e^+e^- \to \Upsilon(4S)$
$-0.73 \pm 0.23 \pm 0.050$	AUBERT	09C	BABR	$e^+e^- \to \Upsilon(4S)$
$-0.96 \pm 0.43 \pm 0.12$	[3] AUSHEV	04	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	DOCUMENT ID		TECN	COMMENT
$-0.44 \pm 0.22 \pm 0.06$	AUBERT	07AI	BABR	Repl. by AUBERT 09C
$-0.29 \pm 0.33 \pm 0.07$	AUBERT,B	05Z	BABR	Repl. by AUBERT 07AI
$-0.24 \pm 0.69 \pm 0.12$	AUBERT	03J	BABR	Repl. by AUBERT,B 05Z

[1] AAIJ 20L reports the measurements of $\mathrm{S} = -0.861 \pm 0.077 \pm 0.019$ and $\Delta\mathrm{S} = 0.019 \pm 0.075 \pm 0.012$ such that $S_{D^*(2010)^- D^+} = \mathrm{S} - \Delta\mathrm{S}$.

[2] ROHRKEN 12 reports the measurements of $\mathrm{S} = -0.78 \pm 0.15 \pm 0.05$ and $\Delta\mathrm{S} = -0.13 \pm 0.15 \pm 0.04$ such that $S_{D^*(2010)^+ D^-} = \mathrm{S} - \Delta\mathrm{S}$.

[3] Combines results from fully and partially reconstructed $B^0 \to D^{*\pm} D^{\mp}$ decays.

$C_{D^*(2010)^+ D^-}$ ($B^0 \to D^*(2010)^+ D^-$)

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{-0.03 \pm 0.09}$ **OUR AVERAGE**	Error includes scale factor of 1.1.			
$-0.090 \pm 0.130 \pm 0.026$	[1] AAIJ	20L	LHCB	pp at 7, 8, 13 TeV
$0.11 \pm 0.14 \pm 0.06$	[2] ROHRKEN	12	BELL	$e^+e^- \to \Upsilon(4S)$
$0.08 \pm 0.17 \pm 0.04$	AUBERT	09C	BABR	$e^+e^- \to \Upsilon(4S)$
$-0.37 \pm 0.22 \pm 0.06$	[3] AUSHEV	04	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	DOCUMENT ID		TECN	COMMENT
$0.18 \pm 0.15 \pm 0.04$	AUBERT	07AI	BABR	Repl. by AUBERT 09C
$0.09 \pm 0.25 \pm 0.06$	AUBERT,B	05Z	BABR	Repl. by AUBERT 07AI
$-0.47 \pm 0.40 \pm 0.12$	AUBERT	03J	BABR	Repl. by AUBERT,B 05Z

[1] AAIJ 20L reports the measurements of $\mathrm{C} = -0.059 \pm 0.092 \pm 0.020$ and $\Delta\mathrm{C} = -0.031 \pm 0.092 \pm 0.016$ such that $C_{D^*(2010)^+ D^-} = \mathrm{C} + \Delta\mathrm{C}$.

[2] ROHRKEN 12 reports the measurements of C = $-0.01 \pm 0.11 \pm 0.04$ and ΔC = $0.12 \pm 0.11 \pm 0.03$ such that $C_{D^*(2010)^+ D^-} = \text{C} + \Delta\text{C}$.

[3] Combines results from fully and partially reconstructed $B^0 \rightarrow D^{*\pm} D^{\mp}$ decays.

$S_{D^*(2010)^+ D^-}$ ($B^0 \rightarrow D^*(2010)^+ D^-$)

VALUE	DOCUMENT ID		TECN	COMMENT
−0.80 ±0.09 OUR AVERAGE				
$-0.842 \pm 0.107 \pm 0.022$	[1] AAIJ	20L	LHCB	pp at 7, 8, 13 TeV
$-0.90 \pm 0.21 \pm 0.07$	[2] ROHRKEN	12	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
$-0.62 \pm 0.21 \pm 0.03$	AUBERT	09C	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
$-0.55 \pm 0.39 \pm 0.12$	[3] AUSHEV	04	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.79 \pm 0.21 \pm 0.06$	AUBERT	07AI	BABR	Repl. by AUBERT 09C
$-0.54 \pm 0.35 \pm 0.07$	AUBERT,B	05Z	BABR	Repl. by AUBERT 07AI
$-0.82 \pm 0.75 \pm 0.14$	AUBERT	03J	BABR	Repl. by AUBERT,B 05Z

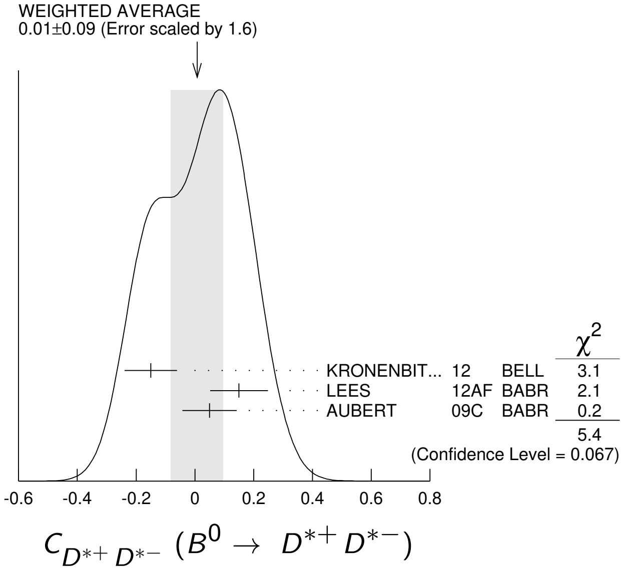
[1] AAIJ 20L reports the measurements of S = $-0.861 \pm 0.077 \pm 0.019$ and ΔS = $0.019 \pm 0.075 \pm 0.012$ such that $S_{D^*(2010)^+ D^-} = \text{S} + \Delta\text{S}$.

[2] ROHRKEN 12 reports the measurements of S = $-0.78 \pm 0.15 \pm 0.05$ and ΔS = $-0.13 \pm 0.15 \pm 0.04$ such that $S_{D^*(2010)^+ D^-} = \text{S} + \Delta\text{S}$.

[3] Combines results from fully and partially reconstructed $B^0 \rightarrow D^{*\pm} D^{\mp}$ decays.

$C_{D^{*+} D^{*-}}$ ($B^0 \rightarrow D^{*+} D^{*-}$)

VALUE	DOCUMENT ID		TECN	COMMENT
0.01±0.09 OUR AVERAGE	Error includes scale factor of 1.6. See the ideogram below.			
$-0.15 \pm 0.08 \pm 0.04$	[1,2] KRONENBIT...	12	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$
$+0.15 \pm 0.09 \pm 0.04$	[3] LEES	12AF	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
$0.05 \pm 0.09 \pm 0.02$	AUBERT	09C	BABR	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.15 \pm 0.13 \pm 0.04$	[2] VERVINK	09	BELL	Repl. by KRONENBITTER 12
$-0.02 \pm 0.11 \pm 0.02$	[1] AUBERT	07BO	BABR	Repl. by AUBERT 09C
$0.26 \pm 0.26 \pm 0.06$	[2] MIYAKE	05	BELL	Repl. by VERVINK 09
$0.28 \pm 0.23 \pm 0.02$	[4] AUBERT	03Q	BABR	Repl. by AUBERT 07BO



[1] Assumes both CP-even and CP-odd states having the CP asymmetry.

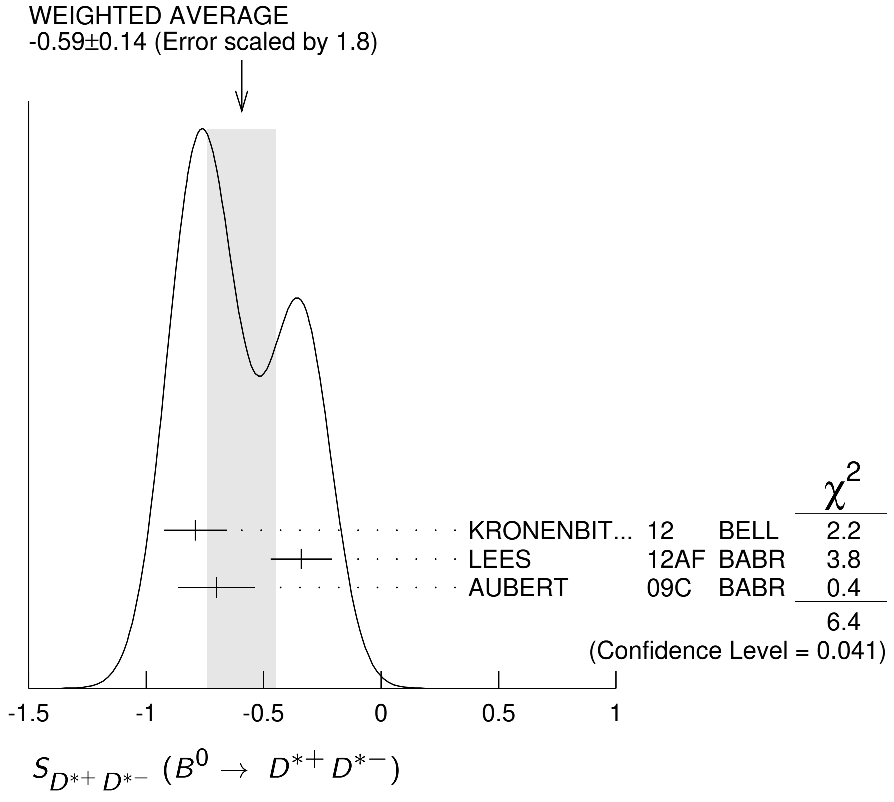
[2] Belle Collab. quotes $A_{D^{*+}D^{*-}}$ which is equal to $-C_{D^{*+}D^{*-}}$.

[3] Measured partially reconstructed candidates when one D^0 meson is not excplicitely reconstructed. Analysis does not separate *CP*-even and *CP*-odd component.

[4] AUBERT 03Q reports $|\lambda|$=0.75 ± 0.19 ± 0.02 and Im(λ)=0.05 ± 0.29 ± 0.10. We convert them to *S* and *C* parameters taking into account correlations.

$S_{D^{*+}D^{*-}}$ ($B^0 \to D^{*+}D^{*-}$)

VALUE	DOCUMENT ID		TECN	COMMENT
$-$0.59±0.14 OUR AVERAGE	Error includes scale factor of 1.8. See the ideogram below.			
$-0.79\pm0.13\pm0.03$	[1] KRONENBIT...	12	BELL	$e^+e^- \to \Upsilon(4S)$
$-0.34\pm0.12\pm0.05$	[2] LEES	12AF	BABR	$e^+e^- \to \Upsilon(4S)$
$-0.70\pm0.16\pm0.03$	[1] AUBERT	09C	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.96\pm0.25^{+0.13}_{-0.16}$	VERVINK	09	BELL	Repl. by KRONENBITTER 12
$-0.66\pm0.19\pm0.04$	[1] AUBERT	07BO	BABR	Repl. by AUBERT 09C
$-0.75\pm0.56\pm0.12$	MIYAKE	05	BELL	Repl. by VERVINK 09
$0.06\pm0.37\pm0.13$	[3] AUBERT	03Q	BABR	Repl. by AUBERT 07BO



[1] Assumes both *CP*-even and *CP*-odd states having the *CP* asymmetry.

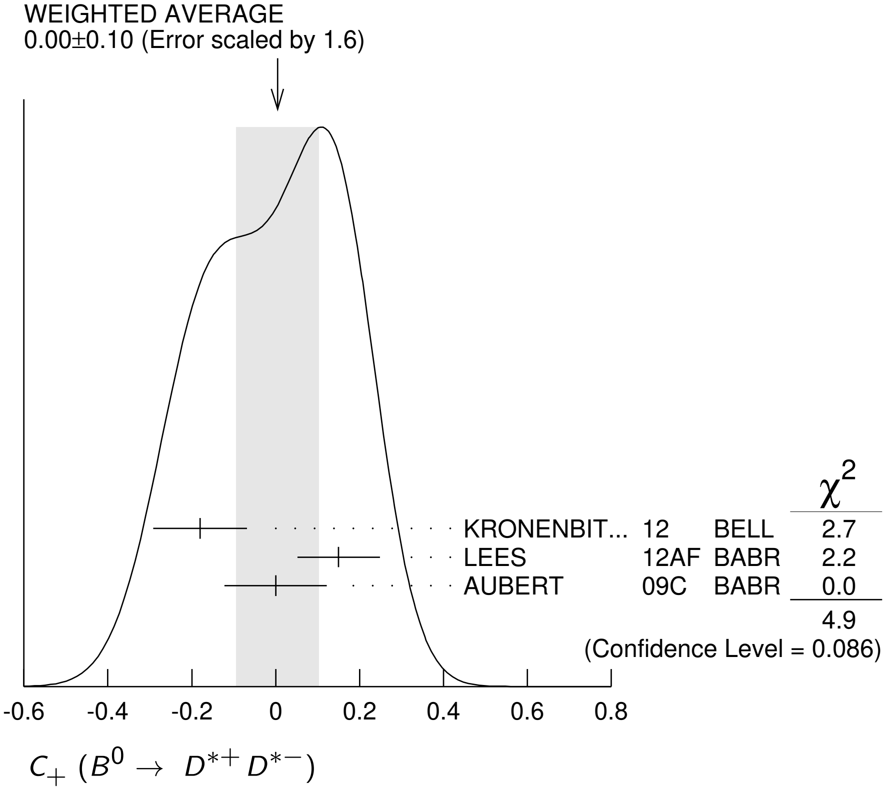
[2] Measured partially reconstructed candidates when one D^0 meson is not excplicitely reconstructed. Analysis does not separate *CP*-even and *CP*-odd component.

[3] AUBERT 03Q reports $|\lambda|$=0.75 ± 0.19 ± 0.02 and Im(λ)=0.05 ± 0.29 ± 0.10. We convert them to *S* and *C* parameters taking into account correlations.

C_+ ($B^0 \to D^{*+} D^{*-}$)

See the note in the $C_{\pi\pi}$ datablock, but for *CP* even final state.

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.00±0.10 OUR AVERAGE	Error includes scale factor of 1.6. See the ideogram below.			
$-0.18 \pm 0.10 \pm 0.05$	[1] KRONENBIT...	12	BELL	$e^+ e^- \to \Upsilon(4S)$
$+0.15 \pm 0.09 \pm 0.04$	[2] LEES	12AF	BABR	$e^+ e^- \to \Upsilon(4S)$
$0.00 \pm 0.12 \pm 0.02$	AUBERT	09C	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.05 \pm 0.14 \pm 0.02$	AUBERT	07BO	BABR	Repl. by AUBERT 09C
$0.06 \pm 0.17 \pm 0.03$	[3] AUBERT,BE	05A	BABR	Repl. by AUBERT 07BO



[1] Belle Collab. quotes $A_{D^{*+} D^{*-}}$ which is equal to $-C_{D^{*+} D^{*-}}$.

[2] Measured partially reconstructed candidates when one D^0 meson is not excplicitely reconstructed. Extracted under assumption of equal C_+ and C_-.

[3] AUBERT,BE 05A reports a *CP*-odd fraction $R_\perp = 0.125 \pm 0.044 \pm 0.007$.

S_+ ($B^0 \to D^{*+} D^{*-}$)

See the note in the $S_{\pi\pi}$ datablock, but for *CP* even final state.

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
−0.73±0.09 OUR AVERAGE				
$-0.81 \pm 0.13 \pm 0.03$	KRONENBIT...	12	BELL	$e^+ e^- \to \Upsilon(4S)$
$-0.49 \pm 0.18 \pm 0.08$	[1] LEES	12AF	BABR	$e^+ e^- \to \Upsilon(4S)$
$-0.76 \pm 0.16 \pm 0.04$	AUBERT	09C	BABR	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.72 \pm 0.19 \pm 0.05$	AUBERT	07BO	BABR	Repl. by AUBERT 09C
$-0.75 \pm 0.25 \pm 0.03$	[2] AUBERT,BE	05A	BABR	Repl. by AUBERT 07BO

[1] Measured partially reconstructed candidates when one D^0 meson is not excplicitely reconstructed. Analysis does not separate *CP*-even and *CP*-odd component. Value is obtained from $S = -0.34 \pm 0.12 \pm 0.05$ using $S = S_+ \ (1 - 2\ R_\perp)$ with $R_\perp = 0.158 \pm 0.029$.

[2] AUBERT,BE 05A reports a *CP*-odd fraction $R_\perp = 0.125 \pm 0.044 \pm 0.007$.

$C_- \ (B^0 \to \ D^{*+} D^{*-})$

See the note in the $C_{\pi\pi}$ datablock, but for *CP* odd final state.

VALUE	DOCUMENT ID		TECN	COMMENT
0.19 ± 0.31 OUR AVERAGE				
$0.05 \pm 0.39 \pm 0.08$	[1] KRONENBIT...	12	BELL	$e^+ e^- \to \ \Upsilon(4S)$
$0.41 \pm 0.49 \pm 0.08$	AUBERT	09C	BABR	$e^+ e^- \to \ \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.23 \pm 0.67 \pm 0.10$	AUBERT	07BO	BABR	Repl. by AUBERT 09C
$-0.20 \pm 0.96 \pm 0.11$	[2] AUBERT,BE	05A	BABR	Repl. by AUBERT 07BO

[1] Belle Collab. quotes $A_{D^{*+} D^{*-}}$ which is equal to $-C_{D^{*+} D^{*-}}$.

[2] AUBERT,BE 05A reports a *CP*-odd fraction $\mathrm{R}_\perp = 0.125 \pm 0.044 \pm 0.007$.

$S_- \ (B^0 \to \ D^{*+} D^{*-})$

See the note in the $S_{\pi\pi}$ datablock, but for *CP* odd final state.

VALUE	DOCUMENT ID		TECN	COMMENT
0.1 ± 1.6 OUR AVERAGE	Error includes scale factor of 3.5.			
$1.52 \pm 0.62 \pm 0.12$	KRONENBIT...	12	BELL	$e^+ e^- \to \ \Upsilon(4S)$
$-1.80 \pm 0.70 \pm 0.16$	AUBERT	09C	BABR	$e^+ e^- \to \ \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-1.83 \pm 1.04 \pm 0.23$	AUBERT	07BO	BABR	Repl. by AUBERT 09C
$-1.75 \pm 1.78 \pm 0.22$	[1] AUBERT,BE	05A	BABR	Repl. by AUBERT 07BO

[1] AUBERT,BE 05A reports a *CP*-odd fraction $\mathrm{R}_\perp = 0.125 \pm 0.044 \pm 0.007$.

$C\ (B^0 \to \ D^*(2010)^+ D^*(2010)^- K^0_S)$

VALUE	DOCUMENT ID		TECN	COMMENT
$0.01 \pm 0.28 \pm 0.09$	[1] DALSENO	07	BELL	$e^+ e^- \to \ \Upsilon(4S)$

[1] Reports value of *A* which is equal to $-C$.

$S\ (B^0 \to \ D^*(2010)^+ D^*(2010)^- K^0_S)$

VALUE	DOCUMENT ID		TECN	COMMENT
$0.06^{+0.45}_{-0.44} \pm 0.06$	[1] DALSENO	07	BELL	$e^+ e^- \to \ \Upsilon(4S)$

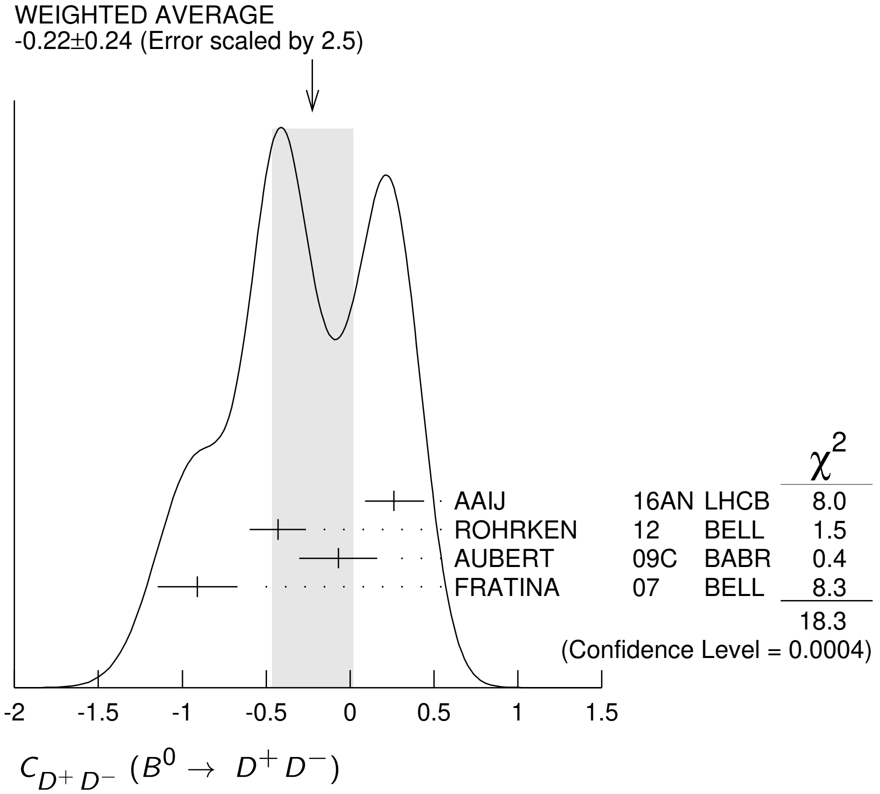
[1] This value includes an unknown *CP* dilution factor D due to possible contributions from intermediate resonances and different partial waves.

$C_{D^+ D^-} \ (B^0 \to \ D^+ D^-)$

VALUE	DOCUMENT ID		TECN	COMMENT
-0.22 ± 0.24 OUR AVERAGE	Error includes scale factor of 2.5. See the ideogram below.			
$0.26^{+0.18}_{-0.17} \pm 0.02$	AAIJ	16AN	LHCB	pp at 7, 8 TeV
$-0.43 \pm 0.16 \pm 0.05$	ROHRKEN	12	BELL	$e^+ e^- \to \ \Upsilon(4S)$
$-0.07 \pm 0.23 \pm 0.03$	AUBERT	09C	BABR	$e^+ e^- \to \ \Upsilon(4S)$
$-0.91 \pm 0.23 \pm 0.06$	[1] FRATINA	07	BELL	$e^+ e^- \to \ \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$0.11 \pm 0.22 \pm 0.07$	AUBERT	07AI	BABR	Repl. by AUBERT 09C
$0.11 \pm 0.35 \pm 0.06$	AUBERT,B	05Z	BABR	Repl. by AUBERT 07AI



[1] The paper reports A, which is equal to $-C$.

$S_{D^+D^-}$ ($B^0 \to D^+D^-$)

VALUE	DOCUMENT ID		TECN	COMMENT
$-0.76^{+0.15}_{-0.13}$ OUR AVERAGE	Error includes scale factor of 1.2.			
$-0.54^{+0.17}_{-0.16} \pm 0.05$	AAIJ	16AN	LHCB	pp at 7, 8 TeV
$-1.06^{+0.21}_{-0.14} \pm 0.08$	ROHRKEN	12	BELL	$e^+e^- \to \Upsilon(4S)$
$-0.63 \pm 0.36 \pm 0.05$	AUBERT	09C	BABR	$e^+e^- \to \Upsilon(4S)$
$-1.13 \pm 0.37 \pm 0.09$	FRATINA	07	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.54 \pm 0.34 \pm 0.06$	AUBERT	07AI	BABR	Repl. by AUBERT 09C
$-0.29 \pm 0.63 \pm 0.06$	AUBERT,B	05Z	BABR	Repl. by AUBERT 07AI

$C_{J/\psi(1S)\pi^0}$ ($B^0 \to J/\psi(1S)\pi^0$)

VALUE	DOCUMENT ID		TECN	COMMENT
0.03 ± 0.17 OUR AVERAGE	Error includes scale factor of 1.5.			
$0.15 \pm 0.14^{+0.04}_{-0.03}$	[1] PAL	18	BELL	$e^+e^- \to \Upsilon(4S)$
$-0.20 \pm 0.19 \pm 0.03$	AUBERT	08AU	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$-0.08\pm0.16\pm0.05$	[1] LEE 08A	BELL	Repl. by PAL 18
$-0.21\pm0.26\pm0.06$	AUBERT,B 06B	BABR	Repl. by AUBERT 08AU
$0.01\pm0.29\pm0.03$	[1] KATAOKA 04	BELL	Repl. by LEE 08A
$0.38\pm0.41\pm0.09$	AUBERT 03N	BABR	Repl. by AUBERT,B 06B

[1] BELLE Collab. quotes $A_{J/\psi\pi^0}$ which is equal to $-C_{J/\psi\pi^0}$.

$S_{J/\psi(1S)\pi^0}$ ($B^0 \to J/\psi(1S)\pi^0$)

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
-0.88 ± 0.32 OUR AVERAGE	Error includes scale factor of 2.2.		
$-0.59\pm0.19\pm0.03$	PAL 18	BELL	$e^+e^- \to \Upsilon(4S)$
$-1.23\pm0.21\pm0.04$	AUBERT 08AU	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$-0.65\pm0.21\pm0.05$	LEE 08A	BELL	Repl. by PAL 18
$-0.68\pm0.30\pm0.04$	AUBERT,B 06B	BABR	Repl. by AUBERT 08AU
$-0.72\pm0.42\pm0.09$	KATAOKA 04	BELL	Repl. by LEE 08A
$0.05\pm0.49\pm0.16$	AUBERT 03N	BABR	Repl. by AUBERT,B 06B

$C(B^0 \to J/\psi(1S)\rho^0)$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$-0.063\pm0.056^{+0.019}_{-0.014}$	[1] AAIJ 15J	LHCB	pp at 7, 8 TeV

[1] Time-dependent CP violation is measured in the $B^0 \to J/\psi\rho^0$ and was used to limit the size of penguin amplitude contributions to ϕ_s in $B^0_s \to J/\psi\phi$ decays to be between $[-1.05^\circ, 1.18^\circ]$ at 95% confidence level.

$S(B^0 \to J/\psi(1S)\rho^0)$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$-0.66^{+0.13}_{-0.12}{}^{+0.09}_{-0.03}$	[1] AAIJ 15J	LHCB	pp at 7, 8 TeV

[1] Time-dependent CP violation is measured in the $B^0 \to J/\psi\rho^0$ and was used to limit the size of penguin amplitude contributions to ϕ_s in $B^0_s \to J/\psi\phi$ decays to be between $[-1.05^\circ, 1.18^\circ]$ at 95% confidence level.

$C_{D^{(*)}_{CP}h^0}$ ($B^0 \to D^{(*)}_{CP}h^0$)

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$-0.02\pm0.07\pm0.03$	[1] ABDESSALAM 15		$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$-0.23\pm0.16\pm0.04$	AUBERT 07AJ	BABR	Repl. by ABDESSALAM 15

[1] BABAR and BELLE combined analysis uses CP-eigenstate decay modes $D^0 \to K^+K^-$, $K^0_S\pi^0$, $K^0_S\omega$, and $h^0 = \pi^0$, η, ω.

$S_{D^{(*)}_{CP}h^0}$ ($B^0 \to D^{(*)}_{CP}h^0$)

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$-0.66\pm0.10\pm0.06$	[1] ABDESSALAM 15		$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$-0.56 \pm 0.23 \pm 0.05$		AUBERT	07AJ	BABR Repl. by ABDESSALAM 15

[1] BABAR and BELLE combined analysis uses *CP*-eigenstate decay modes $D^0 \to K^+ K^-$, $K^0_S \pi^0$, $K^0_S \omega$, and $h^0 = \pi^0$, η, ω.

$C_{K^0\pi^0}$ $(B^0 \to K^0\pi^0)$

VALUE		DOCUMENT ID		TECN	COMMENT
0.00±0.13 OUR AVERAGE		Error includes scale factor of 1.4.			
$-0.14 \pm 0.13 \pm 0.06$	[1]	FUJIKAWA	10A	BELL	$e^+ e^- \to \Upsilon(4S)$
$0.13 \pm 0.13 \pm 0.03$		AUBERT	09I	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.24 \pm 0.15 \pm 0.03$		AUBERT	08E	BABR	Repl. by AUBERT 09I
$0.05 \pm 0.14 \pm 0.05$	[1]	CHAO	07	BELL	Repl. by FUJIKAWA 10A
$0.06 \pm 0.18 \pm 0.03$		AUBERT	05Y	BABR	Repl. by AUBERT 08E
$-0.16 \pm 0.29 \pm 0.05$	[1,2]	CHAO	05A	BELL	Repl. by CHEN 05B
$0.11 \pm 0.20 \pm 0.09$	[1]	CHEN	05B	BELL	Repl. by CHAO 07
$-0.03 \pm 0.36 \pm 0.11$	[1]	AUBERT	04M	BABR	Repl. by AUBERT,B 04M
$0.40^{+0.27}_{-0.28} \pm 0.09$	[3]	AUBERT,B	04M	BABR	Repl. by AUBERT 05Y

[1] Reports *A* which is equal to $-C$.

[2] Corresponds to a 90% CL interval of $-0.33 < A_{CP} < 0.64$.

[3] Based on a total signal yield of 122 ± 16 events.

$S_{K^0\pi^0}$ $(B^0 \to K^0\pi^0)$

VALUE		DOCUMENT ID		TECN	COMMENT
0.58±0.17 OUR AVERAGE					
$0.67 \pm 0.31 \pm 0.08$		FUJIKAWA	10A	BELL	$e^+ e^- \to \Upsilon(4S)$
$0.55 \pm 0.20 \pm 0.03$		AUBERT	09I	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.40 \pm 0.23 \pm 0.03$		AUBERT	08E	BABR	Repl. by AUBERT 09I
$0.33 \pm 0.35 \pm 0.08$		CHAO	07	BELL	Repl. by FUJIKAWA 10A
$0.35^{+0.30}_{-0.33} \pm 0.04$		AUBERT	05Y	BABR	Repl. by AUBERT 08E
$0.32 \pm 0.61 \pm 0.13$		CHEN	05B	BELL	Repl. by CHAO 07
$0.48^{+0.38}_{-0.47} \pm 0.06$	[1]	AUBERT,B	04M	BABR	Repl. by AUBERT 05Y

[1] Based on a total signal yield of 122 ± 16 events.

$C_{\eta'(958) K^0_S}$ $(B^0 \to \eta'(958) K^0_S)$

See updated measurements in $C_{\eta' K^0}$

VALUE		DOCUMENT ID		TECN	COMMENT
−0.04±0.20 OUR AVERAGE		Error includes scale factor of 2.5.			
$-0.21 \pm 0.10 \pm 0.02$		AUBERT	05M	BABR	$e^+ e^- \to \Upsilon(4S)$
$0.19 \pm 0.11 \pm 0.05$	[1]	CHEN	05B	BELL	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$-0.26 \pm 0.22 \pm 0.03$	[1]	ABE	03C	BELL	Repl. by ABE 03H
$0.01 \pm 0.16 \pm 0.04$	[1]	ABE	03H	BELL	Repl. by CHEN 05B
$0.10 \pm 0.22 \pm 0.04$		AUBERT	03W	BABR	Repl. by AUBERT 05M
$-0.13 \pm 0.32^{+0.06}_{-0.09}$	[1]	CHEN	02B	BELL	Repl. by ABE 03C

[1] BELLE Collab. quotes $A_{\eta'(958) K^0_S}$ which is equal to $-C_{\eta'(958) K^0_S}$.

$S_{\eta'(958)K^0_S}$ $(B^0 \to \eta'(958) K^0_S)$

See updated measurements in $S_{\eta' K^0}$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.43±0.17 OUR AVERAGE	Error includes scale factor of 1.5.			
0.30±0.14±0.02	AUBERT	05M	BABR	$e^+e^- \to \Upsilon(4S)$
0.65±0.18±0.04	CHEN	05B	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.71\pm0.37^{+0.05}_{-0.06}$	ABE	03C	BELL	Repl. by ABE 03H
0.43±0.27±0.05	ABE	03H	BELL	Repl. by CHEN 05B
0.02±0.34±0.03	AUBERT	03W	BABR	Repl. by AUBERT 05M
$0.28\pm0.55^{+0.07}_{-0.08}$	CHEN	02B	BELL	Repl. by ABE 03C

$C_{\eta' K^0}$ $(B^0 \to \eta' K^0)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
−0.06±0.04 OUR AVERAGE				
−0.03±0.05±0.04	[1] SANTELJ	14	BELL	$e^+e^- \to \Upsilon(4S)$
−0.08±0.06±0.02	AUBERT	09I	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
−0.16±0.07±0.03	[2] AUBERT	07A	BABR	Repl. by AUBERT 09I
0.01±0.07±0.05	[1,2] CHEN	07	BELL	Repl. by SANTELJ 14

[1] The paper reports A, which is equal to $-C$.

[2] The mixing-induced CP violation is reported with a significance of more than 5 standard deviations in this $b \to s$ penguin dominated mode.

$S_{\eta' K^0}$ $(B^0 \to \eta' K^0)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.63±0.06 OUR AVERAGE				
0.68±0.07±0.03	SANTELJ	14	BELL	$e^+e^- \to \Upsilon(4S)$
0.57±0.08±0.02	AUBERT	09I	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.58±0.10±0.03	[1] AUBERT	07A	BABR	Repl. by AUBERT 09I
0.64±0.10±0.04	[1] CHEN	07	BELL	Repl. by SANTELJ 14

[1] The mixing-induced CP violation is reported with a significance of more than 5 standard deviations in this $b \to s$ penguin dominated mode.

$C_{\omega K^0_S}$ $(B^0 \to \omega K^0_S)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.0 ±0.4 OUR AVERAGE	Error includes scale factor of 3.0.			
0.36±0.19±0.05	[1] CHOBANOVA	14	BELL	$e^+e^- \to \Upsilon(4S)$
$-0.52^{+0.22}_{-0.20}\pm0.03$	AUBERT	09I	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.09±0.29±0.06	[1] CHAO	07	BELL	Repl. by CHOBANOVA 14
$-0.55^{+0.28}_{-0.26}\pm0.03$	AUBERT,B	06E	BABR	Repl. by AUBERT 09I
−0.27±0.48±0.15	[1] CHEN	05B	BELL	Repl. by CHAO 07

[1] Belle Collab. quotes $A_{\omega K^0_S}$ which is equal to $-C_{\omega K^0_S}$.

$S_{\omega K^0_S}$ ($B^0 \to \omega K^0_S$)

VALUE	DOCUMENT ID		TECN	COMMENT
0.70±0.21 OUR AVERAGE				
0.91±0.32±0.05	CHOBANOVA	14	BELL	$e^+e^- \to \Upsilon(4S)$
$0.55^{+0.26}_{-0.29}\pm0.02$	AUBERT	09I	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.11±0.46±0.07	CHAO	07	BELL	Repl. by CHOBANOVA 14
$0.51^{+0.35}_{-0.39}\pm0.02$	AUBERT,B	06E	BABR	Repl. by AUBERT 09I
$0.76\pm0.65^{+0.13}_{-0.16}$	CHEN	05B	BELL	Repl. by CHAO 07

C ($B^0 \to K^0_S \pi^0 \pi^0$)

VALUE	DOCUMENT ID		TECN	COMMENT
−0.21±0.20 OUR AVERAGE				
−0.28±0.21±0.04	[1] YUSA	19	BELL	$e^+e^- \to \Upsilon(4S)$
0.23±0.52±0.13	AUBERT	07AQ	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Reports value of A which is equal to $-C$.

S ($B^0 \to K^0_S \pi^0 \pi^0$)

VALUE	DOCUMENT ID		TECN	COMMENT
$0.89^{+0.27}_{-0.30}$ OUR AVERAGE				
$0.92^{+0.27}_{-0.31}\pm0.11$	YUSA	19	BELL	$e^+e^- \to \Upsilon(4S)$
0.72±0.71±0.08	AUBERT	07AQ	BABR	$e^+e^- \to \Upsilon(4S)$

$C_{\rho^0 K^0_S}$ ($B^0 \to \rho^0 K^0_S$)

VALUE	DOCUMENT ID		TECN	COMMENT
−0.04±0.20 OUR AVERAGE				
−0.05±0.26±0.10	[1] AUBERT	09AU	BABR	$e^+e^- \to \Upsilon(4S)$
$-0.03^{+0.24}_{-0.23}\pm0.15$	[2,3] DALSENO	09	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.64±0.41±0.20	AUBERT	07F	BABR	Repl. by AUBERT 09AU

[1] Uses Dalitz plot analysis of $B^0 \to K^0 \pi^+ \pi^-$ decays and the first of two equivalent solutions is used.

[2] Quotes $A_{\rho^0 (KS)^0}$ which is equal to $-C_{\rho^0 K^0_S}$.

[3] Uses Dalitz plot analysis of $B^0 \to K^0 \pi^+ \pi^-$ decays and the first of two consistent solutions that may be preferred.

$S_{\rho^0 K^0_S}$ ($B^0 \to \rho^0 K^0_S$)

VALUE	DOCUMENT ID		TECN	COMMENT
$0.50^{+0.17}_{-0.21}$ OUR AVERAGE				
$0.35^{+0.26}_{-0.31}\pm0.07$	[1] AUBERT	09AU	BABR	$e^+e^- \to \Upsilon(4S)$
$0.64^{+0.19}_{-0.25}\pm0.13$	[2] DALSENO	09	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.20 \pm 0.52 \pm 0.24$	AUBERT 07F	BABR	Repl. by AUBERT 09AU

[1] Uses Dalitz plot analysis of $B^0 \to K^0\pi^+\pi^-$ decays and the first of two equivalent solutions is used.

[2] Uses Dalitz plot analysis of $B^0 \to K^0\pi^+\pi^-$ decays and the first of two consistent solutions that may be preferred.

$C_{f_0(980)K^0_S}$ ($B^0 \to f_0(980)K^0_S$)

VALUE	DOCUMENT ID	TECN	COMMENT
0.29±0.20 OUR AVERAGE			
$0.28 \pm 0.24 \pm 0.09$	[1] LEES 12O	BABR	$e^+e^- \to \Upsilon(4S)$
$0.30 \pm 0.29 \pm 0.14$	[2,3] NAKAHAMA 10	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.08 \pm 0.19 \pm 0.05$	[4] AUBERT 09AU	BABR	Repl. by LEES 12O
$0.06 \pm 0.17 \pm 0.11$	[2,5] DALSENO 09	BELL	Repl. by NAKAHAMA 10
$-0.41 \pm 0.23 \pm 0.07$	[2] AUBERT 07AX	BABR	Repl. by AUBERT 09AU
$0.15 \pm 0.15 \pm 0.07$	[2] CHAO 07	BELL	Repl. by DALSENO 09
$0.39 \pm 0.27 \pm 0.09$	[2] CHEN 05B	BELL	Repl. by CHAO 07

[1] Uses Dalitz plot analysis of the $B^0 \to K^0_S K^+ K^-$ decay.

[2] Quotes $A_{f_0(980)K^0_S}$ which is equal to $-C_{f_0(980)K^0_S}$.

[3] Uses Dalitz plot analysis of $B^0 \to K^0_S K^+ K^-$ decays and the first of four consistent solutions that may be preferred.

[4] Uses Dalitz plot analysis of $B^0 \to K^0\pi^+\pi^-$ decays and the first of two equivalent solutions is used.

[5] Uses Dalitz plot analysis of $B^0 \to K^0\pi^+\pi^-$ decays and the first of two consistent solutions that may be preferred.

$S_{f_0(980)K^0_S}$ ($B^0 \to f_0(980)K^0_S$)

VALUE	DOCUMENT ID	TECN	COMMENT
−0.50±0.16 OUR AVERAGE			
$-0.55 \pm 0.18 \pm 0.12$	[1] LEES 12O	BABR	$e^+e^- \to \Upsilon(4S)$
$-0.43^{+0.22}_{-0.20} \pm 0.14$	[2] DALSENO 09	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$-0.96^{+0.21}_{-0.04} \pm 0.04$	[3] AUBERT 09AU	BABR	Repl. by LEES 12O
$-0.25 \pm 0.26 \pm 0.10$	[4] AUBERT 07AX	BABR	Repl. by AUBERT 09AU
$0.18 \pm 0.23 \pm 0.11$	CHAO 07	BELL	Repl. by DALSENO 09
$0.47 \pm 0.41 \pm 0.08$	CHEN 05B	BELL	Repl. by CHAO 07

[1] Uses Dalitz plot analysis of the $B^0 \to K^0_S K^+ K^-$ decay.

[2] Uses Dalitz plot analysis of $B^0 \to K^0\pi^+\pi^-$ decays and the first of two consistent solutions that may be preferred.

[3] Uses Dalitz plot analysis of $B^0 \to K^0\pi^+\pi^-$ decays and the first of two equivalent solutions is used.

[4] Reports β_{eff}. We quote S obtained from epaps: E-PRLTAO-99-076741.

$S_{f_2(1270)K^0_S}$ $(B^0 \to f_2(1270)K^0_S)$

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{-0.48 \pm 0.52 \pm 0.12}$	[1] AUBERT	09AU	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses Dalitz plot analysis of $B^0 \to K^0\pi^+\pi^-$ decays and the first of two equivalent solutions is used.

$C_{f_2(1270)K^0_S}$ $(B^0 \to f_2(1270)K^0_S)$

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.28^{+0.35}_{-0.40} \pm 0.11}$	[1] AUBERT	09AU	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses Dalitz plot analysis of $B^0 \to K^0\pi^+\pi^-$ decays and the first of two equivalent solutions is used.

$S_{f_x(1300)K^0_S}$ $(B^0 \to f_x(1300)K^0_S)$

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{-0.20 \pm 0.52 \pm 0.10}$	[1] AUBERT	09AU	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses Dalitz plot analysis of $B^0 \to K^0\pi^+\pi^-$ decays and the first of two equivalent solutions is used.

$C_{f_x(1300)K^0_S}$ $(B^0 \to f_x(1300)K^0_S)$

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.13^{+0.33}_{-0.35} \pm 0.10}$	[1] AUBERT	09AU	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses Dalitz plot analysis of $B^0 \to K^0\pi^+\pi^-$ decays and the first of two equivalent solutions is used.

$S_{K^0\pi^+\pi^-}$ $(B^0 \to K^0\pi^+\pi^-$ nonresonant)

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{-0.01 \pm 0.31 \pm 0.10}$	[1] AUBERT	09AU	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses Dalitz plot analysis of $B^0 \to K^0\pi^+\pi^-$ decays and the first of two equivalent solutions is used.

$C_{K^0\pi^+\pi^-}$ $(B^0 \to K^0\pi^+\pi^-$ nonresonant)

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.01 \pm 0.25 \pm 0.08}$	[1] AUBERT	09AU	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses Dalitz plot analysis of $B^0 \to K^0\pi^+\pi^-$ decays and the first of two equivalent solutions is used.

$C_{K^0_S K^0_S}$ $(B^0 \to K^0_S K^0_S)$

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.0 \pm 0.4}$ **OUR AVERAGE**	Error includes scale factor of 1.4.			
$0.38 \pm 0.38 \pm 0.05$	[1] NAKAHAMA	08	BELL	$e^+e^- \to \Upsilon(4S)$
$-0.40 \pm 0.41 \pm 0.06$	AUBERT,BE	06C	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Reports $A_{K^0_S K^0_S}$ which equals to $-C_{K^0_S K^0_S}$.

$S_{K^0_S K^0_S}$ ($B^0 \to K^0_S K^0_S$)

VALUE	DOCUMENT ID		TECN	COMMENT
-0.8 ± 0.5 OUR AVERAGE				
$-0.38^{+0.69}_{-0.77}\pm0.09$	NAKAHAMA	08	BELL	$e^+e^- \to \Upsilon(4S)$
$-1.28^{+0.80}_{-0.73}{}^{+0.11}_{-0.16}$	AUBERT,BE	06C	BABR	$e^+e^- \to \Upsilon(4S)$

$C_{K^+K^-K^0_S}$ ($B^0 \to K^+K^-K^0_S$ nonresonant)

VALUE	DOCUMENT ID		TECN	COMMENT
0.06 ± 0.08 OUR AVERAGE				
$0.02 \pm0.09 \pm0.03$	[1,2] LEES	12O	BABR	$e^+e^- \to \Upsilon(4S)$
$0.14 \pm0.11 \pm0.09$	[3,4] NAKAHAMA	10	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.054\pm0.102\pm0.060$	[3,5] AUBERT	07AX	BABR	Repl. by LEES 12O
$0.09 \pm0.10 \pm0.05$	[3,5] CHAO	07	BELL	Repl. by NAKAHAMA 10
$0.10 \pm0.14 \pm0.04$	[5] AUBERT	05T	BABR	Repl. by AUBERT 07AX
$0.09 \pm0.12 \pm0.07$	[3] CHEN	05B	BELL	Repl. by CHAO 07
$-0.10 \pm0.19 \pm0.10$	[5] AUBERT,B	04V	BABR	Repl. by AUBERT 05T
$0.40 \pm0.33 {}^{+0.28}_{-0.10}$	[3] ABE	03C	BELL	Repl. by ABE 03H
$0.17 \pm0.16 \pm0.04$	[3,5] ABE	03H	BELL	Repl. by CHEN 05B

[1] Uses Dalitz plot analysis of the $B^0 \to K^0_S K^+ K^-$ decay.

[2] This measurement is performed on all the isobar components, excluding ϕK^0_S and $f_0(980) K^0_S$.

[3] Quotes $A_{K^+K^-K^0_S}$ which is equal to $-C_{K^+K^-K^0_S}$.

[4] Uses Dalitz plot analysis of $B^0 \to K^0_S K^+ K^-$ decays and the first of four consistent solutions that may be preferred.

[5] Excludes the events from $B^0 \to \phi K^0_S$ decay. The results are derived from a combined sample of $K^+K^-K^0_S$ and $K^+K^-K^0_L$ decays.

$S_{K^+K^-K^0_S}$ ($B^0 \to K^+K^-K^0_S$ nonresonant)

VALUE	DOCUMENT ID		TECN	COMMENT
-0.66 ± 0.11 OUR AVERAGE				
$-0.65 \pm0.12 \pm0.03$	[1,2] LEES	12O	BABR	$e^+e^- \to \Upsilon(4S)$
$-0.68 \pm0.15 {}^{+0.21}_{-0.13}$	[3] CHAO	07	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.764\pm0.111{}^{+0.071}_{-0.040}$	[3,4] AUBERT	07AX	BABR	Repl. by LEES 12O
$-0.42 \pm0.17 \pm0.03$	[3,5] AUBERT	05T	BABR	Repl. by AUBERT 07AX
$-0.49 \pm0.18 \pm0.04$	CHEN	05B	BELL	Repl. by CHAO 07
$-0.56 \pm0.25 \pm0.04$	[3,6] AUBERT,B	04V	BABR	Repl. by AUBERT 05T
$-0.49 \pm0.43 \pm0.11$	ABE	03C	BELL	Repl. by ABE 03H
$-0.51 \pm0.26 \pm0.05$	[3,7] ABE	03H	BELL	Repl. by CHEN 05B

[1] Uses Dalitz plot analysis of the $B^0 \to K^0_S K^+ K^-$ decay.

[2] This measurement is performed on all the isobar components, excluding ϕK^0_S and $f_0(980) K^0_S$. Note that the nonresonant component is not a *CP* eigenstate.

[3] Excludes events from $B^0 \to \phi K^0_S$ decay. The results are derived from a combined sample of $K^+K^-K^0_S$ and $K^+K^-K^0_L$ decays.

[4] Reports β_{eff}. We quote S obtained from epaps: E-PRLTAO-99-076741.

[5] The measured *CP*-even final states fraction is 0.89 ± 0.08 ± 0.06.

[6] The measured *CP*-even final states fraction is 0.98 ± 0.15 ± 0.04.

[7] The measured *CP*-even final states fraction is 1.03 ± 0.15 ± 0.05.

$C_{K^+K^-K^0_S}$ ($B^0 \to K^+K^-K^0_S$ inclusive)

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.015±0.077±0.053	[1,2] AUBERT	07AX	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Measured using full Dalitz plot fit including ϕ component.

[2] The results are derived from a combined sample of $K^+K^-K^0_S$ and $K^+K^-K^0_L$ decays.

$S_{K^+K^-K^0_S}$ ($B^0 \to K^+K^-K^0_S$ inclusive)

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
−0.647±0.116±0.040	[1] AUBERT	07AX	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Measured using full Dalitz plot fit including ϕ component.

$C_{\phi K^0_S}$ ($B^0 \to \phi K^0_S$)

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.01±0.14 OUR AVERAGE				
0.05±0.18±0.05	[1] LEES	12O	BABR	$e^+e^- \to \Upsilon(4S)$
−0.04±0.20±0.10	[2,3] NAKAHAMA	10	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.08±0.18±0.04	[2,4] AUBERT	07AX	BABR	Repl. by LEES 12O
−0.07±0.15±0.05	[2,4] CHEN	07	BELL	Repl. by NAKAHAMA 10
0.00±0.23±0.05	[4] AUBERT	05T	BABR	Repl. by AUBERT 07AX
−0.08±0.22±0.09	[2,4] CHEN	05B	BELL	Repl. by CHEN 07
0.01±0.33±0.10	[4] AUBERT,B	04G	BABR	Repl. by AUBERT 05T
0.56±0.41±0.16	[2] ABE	03C	BELL	Repl. by ABE 03H
0.15±0.29±0.07	[2] ABE	03H	BELL	Repl. by CHEN 05B

[1] Uses Dalitz plot analysis of the $B^0 \to K^0_S K^+K^-$ decay.

[2] Quotes $A_{\phi K^0_S}$ which is equal to $-C_{\phi K^0_S}$.

[3] Uses Dalitz plot analysis of $B^0 \to K^0_S K^+K^-$ decays and the first of four consistent solutions that may be preferred.

[4] Result combines B-meson final states ϕK^0_S and ϕK^0_L by assuming $S_{\phi K^0_S} = -S_{\phi K^0_L}$

$S_{\phi K^0_S}$ ($B^0 \to \phi K^0_S$)

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.59±0.14 OUR AVERAGE				
0.66±0.17±0.07	[1] LEES	12O	BABR	$e^+e^- \to \Upsilon(4S)$
0.50±0.21±0.06	[2] CHEN	07	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.21±0.26±0.11	[2,3] AUBERT	07AX	BABR	Repl. by LEES 12O
$0.50\pm0.25^{+0.07}_{-0.04}$	[2] AUBERT	05T	BABR	Repl. by AUBERT 07AX

$0.08 \pm 0.33 \pm 0.09$	[2] CHEN	05B	BELL	Repl. by CHEN 07
$0.47 \pm 0.34 ^{+0.08}_{-0.06}$	[2] AUBERT,B	04G	BABR	Repl. by AUBERT 05T
$-0.73 \pm 0.64 \pm 0.22$	ABE	03C	BELL	Repl. by ABE 03H
$-0.96 \pm 0.50 ^{+0.09}_{-0.11}$	ABE	03H	BELL	Repl. by CHEN 05B

[1] Uses Dalitz plot analysis of the $B^0 \to K^0_S K^+ K^-$ decay.

[2] Result combines B-meson final states ϕK^0_S and ϕK^0_L by assuming $S_{\phi K^0_S} = -S_{\phi K^0_L}$

[3] Reports β_{eff}. We quote S obtained from epaps: E-PRLTAO-99-076741.

$C_{K_S K_S K_S}(B^0 \to K_S K_S K_S)$

VALUE	DOCUMENT ID		TECN	COMMENT
-0.14 ± 0.12 OUR AVERAGE				
$-0.12 \pm 0.16 \pm 0.05$	[1] KANG	21	BELL	$e^+ e^- \to \Upsilon(4S)$
$-0.17 \pm 0.18 \pm 0.04$	LEES	12I	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.02 \pm 0.21 \pm 0.05$	AUBERT	07AT	BABR	Repl. by LEES 12I
$-0.31 \pm 0.20 \pm 0.07$	[1] CHEN	07	BELL	Repl. by KANG 21
$-0.34 ^{+0.28}_{-0.25} \pm 0.05$	AUBERT,B	05	BABR	Repl. by AUBERT 07AT
$-0.54 \pm 0.34 \pm 0.09$	[1] SUMISAWA	05	BELL	Repl. by CHEN 07

[1] KANG 21 quotes $A_{K^0_S K^0_S K^0_S}$ which is equal to $-C_{K^0_S K^0_S K^0_S}$.

$S_{K_S K_S K_S}(B^0 \to K_S K_S K_S)$

VALUE	DOCUMENT ID		TECN	COMMENT
-0.82 ± 0.17 OUR AVERAGE				
$-0.71 \pm 0.23 \pm 0.05$	KANG	21	BELL	$e^+ e^- \to \Upsilon(4S)$
$-0.94 ^{+0.24}_{-0.21} \pm 0.06$	LEES	12I	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.71 \pm 0.24 \pm 0.04$	AUBERT	07AT	BABR	Repl. by LEES 12I
$0.30 \pm 0.32 \pm 0.08$	CHEN	07	BELL	Repl. by KANG 21
$-0.71 ^{+0.38}_{-0.32} \pm 0.04$	AUBERT,B	05	BABR	Repl. by AUBERT 07AT
$1.26 \pm 0.68 \pm 0.20$	SUMISAWA	05	BELL	Repl. by CHEN 07.

$C_{K^0_S \pi^0 \gamma}(B^0 \to K^0_S \pi^0 \gamma)$

VALUE	DOCUMENT ID		TECN	COMMENT
$0.36 \pm 0.33 \pm 0.04$	[1] AUBERT	08BA	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.20 \pm 0.20 \pm 0.06$	[2,3] USHIRODA	06	BELL	$e^+ e^- \to \Upsilon(4S)$
$-1.0 \pm 0.5 \pm 0.2$	[1] AUBERT,B	05P	BABR	Repl. by AUBERT 08BA
$-0.03 \pm 0.34 \pm 0.11$	[3] USHIRODA	05	BELL	Repl. by USHIRODA 06

[1] Requires $1.1 < M_{K^0_S \pi^0} < 1.8$ GeV/c^2.

[2] Requires $M_{K^0_S \pi^0} < 1.8$ GeV/c^2.

[3] Reports $A_{K^0_S \pi^0 \gamma}$, which is $-C_{K^0_S \pi^0 \gamma}$.

$S_{K^0_S\pi^0\gamma}(B^0 \to K^0_S\pi^0\gamma)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$-0.78 \pm 0.59 \pm 0.09$	[1] AUBERT	08BA	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.10 \pm 0.31 \pm 0.07$	[2] USHIRODA	06	BELL	$e^+e^- \to \Upsilon(4S)$
$0.9 \pm 1.0 \pm 0.2$	[1] AUBERT,B	05P	BABR	Repl. by AUBERT 08BA
$-0.58^{+0.46}_{-0.38} \pm 0.11$	USHIRODA	05	BELL	Repl. by USHIRODA 06

[1] Requires $1.1 < M_{K^0_S\pi^0} < 1.8$ GeV/c^2.

[2] Requires $M_{K^0_S\pi^0} < 1.8$ GeV/c^2.

$C_{K^0_S\pi^+\pi^-\gamma}(B^0 \to K^0_S\pi^+\pi^-\gamma)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$-0.39 \pm 0.20^{+0.03}_{-0.02}$	[1] DEL-AMO-SA...	16	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Requires $M_{K\pi\pi} < 1.8$ GeV/c^2, 0.6 GeV/c^2 $< m_{\pi^+\pi^-} < 0.9$ GeV/c^2, $m_{K\pi} <$ 0.845 GeV/c^2 or $m_{K\pi} > 0.945$ GeV/c^2.

$S_{K^0_S\pi^+\pi^-\gamma}(B^0 \to K^0_S\pi^+\pi^-\gamma)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.14 \pm 0.25 \pm 0.03$	[1] DEL-AMO-SA...	16	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Requires $M_{K\pi\pi} < 1.8$ GeV/c^2, 0.6 GeV/c^2 $< m_{\pi^+\pi^-} < 0.9$ GeV/c^2, $m_{K\pi} <$ 0.845 GeV/c^2 or $m_{K\pi} > 0.945$ GeV/c^2.

$C_{K^*(892)^0\gamma}\ (B^0 \to K^*(892)^0\gamma)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
-0.04 ± 0.16 OUR AVERAGE	Error includes scale factor of 1.2.			
$-0.14 \pm 0.16 \pm 0.03$	[1] AUBERT	08BA	BABR	$e^+e^- \to \Upsilon(4S)$
$0.20 \pm 0.24 \pm 0.05$	[1,2] USHIRODA	06	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.40 \pm 0.23 \pm 0.03$	AUBERT,B	05P	BABR	Repl. by AUBERT 08BA
$-0.57 \pm 0.32 \pm 0.09$	[3] AUBERT,B	04Z	BABR	Repl. by AUBERT,B 05P

[1] Requires $0.8 < M_{K^0_S\pi^0} < 1.0$ GeV/c^2.

[2] Reports value of A which is equal to $-C$.

[3] Based on a total signal of 105 ± 14 events with $K^*(892)^0 \to K^0_S\pi^0$ only.

$S_{K^*(892)^0\gamma}\ (B^0 \to K^*(892)^0\gamma)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
-0.15 ± 0.22 OUR AVERAGE				
$-0.03 \pm 0.29 \pm 0.03$	[1] AUBERT	08BA	BABR	$e^+e^- \to \Upsilon(4S)$
$-0.32^{+0.36}_{-0.33} \pm 0.05$	[1] USHIRODA	06	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$-0.21 \pm 0.40 \pm 0.05$	AUBERT,B 05P	BABR	Repl. by AUBERT 08BA
$-0.79^{+0.63}_{-0.50} \pm 0.10$	[2] USHIRODA 05	BELL	Repl. by USHIRODA 06
$0.25 \pm 0.63 \pm 0.14$	[3] AUBERT,B 04Z	BABR	Repl. by AUBERT,B 05P

[1] Requires $0.8 < M_{K^0_S \pi^0} < 1.0$ GeV/c^2.

[2] Assumes $C(B^0 \to K^*(892)^0 \gamma) = 0$.

[3] Based on a total signal of 105 ± 14 events with $K^*(892)^0 \to K^0_S \pi^0$ only.

$C_{\eta K^0 \gamma}$ ($B^0 \to \eta K^0 \gamma$)

VALUE	DOCUMENT ID	TECN	COMMENT
0.1 ±0.4 OUR AVERAGE	Error includes scale factor of 1.4.		
$0.48 \pm 0.41 \pm 0.07$	[1,2] NAKANO 18	BELL	$e^+ e^- \to \Upsilon(4S)$
$-0.32^{+0.40}_{-0.39} \pm 0.07$	[3] AUBERT 09	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assuming $m_{\eta K^0_S} < 2.1$ GeV.

[2] Reversed the sign for C=-A.

[3] Assuming $m_{\eta K} < 3.25$ GeV.

$S_{\eta K^0 \gamma}$ ($B^0 \to \eta K^0 \gamma$)

VALUE	DOCUMENT ID	TECN	COMMENT
−0.5 ±0.5 OUR AVERAGE	Error includes scale factor of 1.2.		
$-1.32 \pm 0.77 \pm 0.36$	[1] NAKANO 18	BELL	$e^+ e^- \to \Upsilon(4S)$
$-0.18^{+0.49}_{-0.46} \pm 0.12$	[2] AUBERT 09	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Assuming $m_{\eta K^0_S} < 2.1$ GeV.

[2] Assuming $m_{\eta K} < 3.25$ GeV.

$C_{K^0 \phi \gamma}$ ($B^0 \to K^0 \phi \gamma$)

VALUE	DOCUMENT ID	TECN	COMMENT
$\mathbf{-0.35 \pm 0.58^{+0.10}_{-0.23}}$	[1] SAHOO 11A	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Reports value of A, which is equal to $-C$.

$S_{K^0 \phi \gamma}$ ($B^0 \to K^0 \phi \gamma$)

VALUE	DOCUMENT ID	TECN	COMMENT
$\mathbf{0.74^{+0.72}_{-1.05}{}^{+0.10}_{-0.24}}$	SAHOO 11A	BELL	$e^+ e^- \to \Upsilon(4S)$

$C(B^0 \to K^0_S \rho^0 \gamma)$

VALUE	DOCUMENT ID	TECN	COMMENT
$\mathbf{-0.05 \pm 0.18 \pm 0.06}$	[1,2] LI 08F	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Requires $\mathrm{M}_{K^0_S \pi^+ \pi^-} < 1.8$ GeV/c^2 and $0.6 < \mathrm{M}_{\pi^+ \pi^-} < 0.9$ GeV/c^2 .

[2] Reports value of A_{eff} which is equal to $-C$, and includes the non-resonant $\pi^+ \pi^-$ contribution in the ρ^0 region.

$S(B^0 \to K^0_S \rho^0 \gamma)$

VALUE	DOCUMENT ID	TECN	COMMENT
-0.04 ± 0.23 OUR AVERAGE			
$-0.18 \pm 0.32^{+0.06}_{-0.05}$	[1] DEL-AMO-SA..16	BABR	$e^+ e^- \to \Upsilon(4S)$
$0.11 \pm 0.33^{+0.05}_{-0.09}$	[2] LI 08F	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Requires $M_{K\pi\pi} < 1.8$ GeV/c^2, 0.6 GeV/c^2 $< m_{\pi^+\pi^-} < 0.9$ GeV/c^2, $m_{K\pi} <$ 0.845 GeV/c^2 or $m_{K\pi} > 0.945$ GeV/c^2.

[2] Requires $M_{K\pi\pi} < 1.8$ GeV/c^2.

$C(B^0 \to \rho^0 \gamma)$

VALUE	DOCUMENT ID	TECN	COMMENT
$0.44 \pm 0.49 \pm 0.14$	[1] USHIRODA 08	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Reports value of A which is equal to $-C$.

$S(B^0 \to \rho^0 \gamma)$

VALUE	DOCUMENT ID	TECN	COMMENT
$-0.83 \pm 0.65 \pm 0.18$	USHIRODA 08	BELL	$e^+ e^- \to \Upsilon(4S)$

$C_{\pi\pi}(B^0 \to \pi^+ \pi^-)$

$C_{\pi\pi}$ is defined as $(1-|\lambda|^2)/(1+|\lambda|^2)$, where the quantity $\lambda = q/p\, \overline{A}_f / A_f$ is a phase convention independent observable quantity for the final state f. For details, see the review on "*CP* Violation" in the Reviews section.

VALUE	DOCUMENT ID	TECN	COMMENT
-0.314 ± 0.030 OUR AVERAGE			
$-0.311 \pm 0.045 \pm 0.015$	AAIJ 21O	LHCB	pp at 13 TeV
$-0.34 \pm 0.06 \pm 0.01$	AAIJ 18O	LHCB	pp at 7, 8 TeV
$-0.33 \pm 0.06 \pm 0.03$	[1] DALSENO 13	BELL	$e^+ e^- \to \Upsilon(4S)$
$-0.25 \pm 0.08 \pm 0.02$	LEES 13D	BABR	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$-0.38 \pm 0.15 \pm 0.02$	AAIJ 13BO	LHCB	Repl. by AAIJ 18O
$-0.21 \pm 0.09 \pm 0.02$	AUBERT 07AF	BABR	Repl. by LEES 13D
$-0.55 \pm 0.08 \pm 0.05$	[1] ISHINO 07	BELL	Repl. by DALSENO 13
$-0.56 \pm 0.12 \pm 0.06$	[1] ABE 05D	BELL	Repl. by ISHINO 07
$-0.09 \pm 0.15 \pm 0.04$	AUBERT,BE 05	BABR	Repl. by AUBERT 07AF
$-0.58 \pm 0.15 \pm 0.07$	[1] ABE 04E	BELL	Repl. by ABE 05D
$-0.77 \pm 0.27 \pm 0.08$	[1] ABE 03G	BELL	Repl. by ABE 04E.
$-0.94\ ^{+0.31}_{-0.25} \pm 0.09$	[1] ABE 02M	BELL	Repl. by ABE 03G
$-0.25\ ^{+0.45}_{-0.47} \pm 0.14$	[2] AUBERT 02D	BABR	Repl. by AUBERT 02Q
$-0.30 \pm 0.25 \pm 0.04$	[3] AUBERT 02Q	BABR	Repl. by AUBERT,BE 05

[1] Paper reports $A_{\pi\pi}$ which equals to $-C_{\pi\pi}$.

[2] Corresponds to 90% confidence range $-1.0 < C_{\pi\pi} < 0.47$.

[3] Corresponds to 90% confidence range $-0.72 < C_{\pi\pi} < 0.12$.

$S_{\pi\pi}$ ($B^0 \to \pi^+\pi^-$)

$S_{\pi\pi} = 2\mathrm{Im}\lambda/(1+|\lambda|^2)$, see the note in the $C_{\pi\pi}$ datablock above.

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
-0.670 ± 0.030 OUR AVERAGE				
$-0.706 \pm 0.042 \pm 0.013$	AAIJ	21O	LHCB	pp at 13 TeV
$-0.63 \pm 0.05 \pm 0.01$	AAIJ	18O	LHCB	pp at 7, 8 TeV
$-0.64 \pm 0.08 \pm 0.03$	[1] DALSENO	13	BELL	$e^+e^- \to \Upsilon(4S)$
$-0.68 \pm 0.10 \pm 0.03$	LEES	13D	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.71 \pm 0.13 \pm 0.02$	AAIJ	13BO	LHCB	Repl. by AAIJ 18O
$-0.60 \pm 0.11 \pm 0.03$	AUBERT	07AF	BABR	Repl. by LEES 13D
$-0.61 \pm 0.10 \pm 0.04$	ISHINO	07	BELL	Repl. by DALSENO 13
$-0.67 \pm 0.16 \pm 0.06$	[2] ABE	05D	BELL	Repl. by ISHINO 07
$-0.30 \pm 0.17 \pm 0.03$	AUBERT,BE	05	BABR	Repl. by AUBERT 07AF
$-1.00 \pm 0.21 \pm 0.07$	[3] ABE	04E	BELL	Repl. by ABE 05D
$-1.23 \pm 0.41 \, {}^{+0.08}_{-0.07}$	ABE	03G	BELL	Repl. by ABE 04E.
$-1.21 \, {}^{+0.38}_{-0.27} \, {}^{+0.16}_{-0.13}$	ABE	02M	BELL	Repl. by ABE 03G
$0.03 \, {}^{+0.52}_{-0.56} \pm 0.11$	[4] AUBERT	02D	BABR	Repl. by AUBERT 02Q
$0.02 \pm 0.34 \pm 0.05$	[5] AUBERT	02Q	BABR	Repl. by AUBERT,BE 05

[1] An isospin analysis using other BELLE measurements, disfavors the region of $23.8^\circ < \phi_2 < 66.8^\circ$ at 68% CL.

[2] Rule out the *CP*-conserving case, $C_{\pi\pi} = S_{\pi\pi} = 0$, at the 5.4 sigma level.

[3] Rule out the *CP*-conserving case, $C_{\pi\pi} = S_{\pi\pi} = 0$, at the 5.2 sigma level.

[4] Corresponds to 90% confidence range $-0.89 < S_{\pi\pi} < 0.85$.

[5] Corresponds to 90% confidence range $-0.54 < S_{\pi\pi} < 0.58$.

$C_{\pi^0\pi^0}$($B^0 \to \pi^0\pi^0$)

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
-0.33 ± 0.22 OUR AVERAGE				
$-0.14 \pm 0.36 \pm 0.10$	[1] JULIUS	17	BELL	$e^+e^- \to \Upsilon(4S)$
$-0.43 \pm 0.26 \pm 0.05$	LEES	13D	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.49 \pm 0.35 \pm 0.05$	AUBERT	07BC	BABR	Repl. by LEES 13D
$-0.12 \pm 0.56 \pm 0.06$	[2] AUBERT	05L	BABR	Repl. by AUBERT 07BC
$-0.44 \, {}^{+0.52}_{-0.53} \pm 0.17$	[1] CHAO	05	BELL	Repl. by JULIUS 17

[1] BELLE Collab. quotes $A_{\pi^0\pi^0}$ which is equal to $-C_{\pi^0\pi^0}$.

[2] Corresponds to a 90% CL interval of $-0.88 < A_{CP} < 0.64$.

$C_{\rho\pi}$ ($B^0 \to \rho^+\pi^-$)

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
-0.03 ± 0.07 OUR AVERAGE	Error includes scale factor of 1.2.			
$0.016 \pm 0.059 \pm 0.036$	[1] LEES	13J	BABR	$e^+e^- \to \Upsilon(4S)$
$-0.13 \pm 0.09 \pm 0.05$	[1] KUSAKA	07	BELL	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$0.15 \pm 0.09 \pm 0.05$	AUBERT 07AA	BABR	Repl. by LEES 13J
$0.25 \pm 0.17 {}^{+0.02}_{-0.06}$	WANG 05	BELL	Repl. by KUSAKA 07
$0.36 \pm 0.18 \pm 0.04$	AUBERT 03T	BABR	Repl. by AUBERT 07AA

[1] Uses time-dependent Dalitz plot analysis of $B^0 \to \pi^+ \pi^- \pi^0$ decays.

$S_{\rho\pi}$ ($B^0 \to \rho^+ \pi^-$)

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.05 ± 0.07 OUR AVERAGE			
$0.053 \pm 0.081 \pm 0.034$	[1] LEES 13J	BABR	$e^+ e^- \to \Upsilon(4S)$
$0.06 \pm 0.13 \pm 0.05$	[1] KUSAKA 07	BELL	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$-0.03 \pm 0.11 \pm 0.04$	AUBERT 07AA	BABR	Repl. by LEES 13J
$-0.28 \pm 0.23 {}^{+0.10}_{-0.08}$	WANG 05	BELL	Repl. by KUSAKA 07
$0.19 \pm 0.24 \pm 0.03$	AUBERT 03T	BABR	Repl. by AUBERT 07AA

[1] Uses time-dependent Dalitz plot analysis of $B^0 \to \pi^+ \pi^- \pi^0$ decays.

$\Delta C_{\rho\pi}$ ($B^0 \to \rho^+ \pi^-$)

$\Delta C_{\rho\pi}$ describes the asymmetry between the rates $\Gamma(B^0 \to \rho^+ \pi^-) + \Gamma(\overline{B}^0 \to \rho^- \pi^+)$ and $\Gamma(B^0 \to \rho^- \pi^+) + \Gamma(\overline{B}^0 \to \rho^+ \pi^-)$.

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.27 ± 0.06 OUR AVERAGE			
$0.234 \pm 0.061 \pm 0.048$	[1] LEES 13J	BABR	$e^+ e^- \to \Upsilon(4S)$
$0.36 \pm 0.10 \pm 0.05$	[1] KUSAKA 07	BELL	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$0.39 \pm 0.09 \pm 0.09$	AUBERT 07AA	BABR	Repl. by LEES 13J
$0.38 \pm 0.18 {}^{+0.02}_{-0.04}$	WANG 05	BELL	Repl. by KUSAKA 07
$0.28 {}^{+0.18}_{-0.19} \pm 0.04$	AUBERT 03T	BABR	Repl. by AUBERT 07AA

[1] Uses time-dependent Dalitz plot analysis of $B^0 \to \pi^+ \pi^- \pi^0$ decays.

$\Delta S_{\rho\pi}$ ($B^0 \to \rho^+ \pi^-$)

$\Delta S_{\rho\pi}$ is related to the strong phase difference between the amplitudes contributing to $B^0 \to \rho^+ \pi^-$.

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.01 ± 0.08 OUR AVERAGE			
$0.054 \pm 0.082 \pm 0.039$	[1] LEES 13J	BABR	$e^+ e^- \to \Upsilon(4S)$
$-0.08 \pm 0.13 \pm 0.05$	[1] KUSAKA 07	BELL	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$-0.01 \pm 0.14 \pm 0.06$	AUBERT 07AA	BABR	Repl. by LEES 13J
$-0.30 \pm 0.24 \pm 0.09$	WANG 05	BELL	Repl. by KUSAKA 07
$0.15 \pm 0.25 \pm 0.03$	AUBERT 03T	BABR	Repl. by AUBERT 07AA

[1] Uses time-dependent Dalitz plot analysis of $B^0 \to \pi^+ \pi^- \pi^0$ decays.

$C_{\rho^0\pi^0}$ $(B^0 \to \rho^0\pi^0)$

VALUE	DOCUMENT ID		TECN	COMMENT
0.27±0.24 OUR AVERAGE				
0.19±0.23±0.15	[1] LEES	13J	BABR	$e^+e^- \to \Upsilon(4S)$
0.49±0.36±0.28	[1,2] KUSAKA	07	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
−0.10±0.40±0.53	AUBERT	07AA	BABR	Repl. by LEES 13J
$0.53^{+0.67}_{-0.84}{}^{+0.10}_{-0.15}$	[2] DRAGIC	06	BELL	Repl. by KUSAKA 07

[1] Uses time-dependent Dalitz plot analysis of $B^0 \to \pi^+\pi^-\pi^0$ decays.

[2] Quotes $A_{\rho^0\pi^0}$ which is equal to $-C_{\rho^0\pi^0}$.

$S_{\rho^0\pi^0}$ $(B^0 \to \rho^0\pi^0)$

VALUE	DOCUMENT ID		TECN	COMMENT
−0.23±0.34 OUR AVERAGE				
−0.37±0.34±0.20	[1] LEES	13J	BABR	$e^+e^- \to \Upsilon(4S)$
0.17±0.57±0.35	[1] KUSAKA	07	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.04±0.44±0.18	AUBERT	07AA	BABR	Repl. by LEES 13J

[1] Uses time-dependent Dalitz plot analysis of $B^0 \to \pi^+\pi^-\pi^0$ decays.

$C_{a_1\pi}$ $(B^0 \to a_1(1260)^+\pi^-)$

VALUE	DOCUMENT ID		TECN	COMMENT
−0.05±0.11 OUR AVERAGE				
−0.01±0.11±0.09	DALSENO	12	BELL	$e^+e^- \to \Upsilon(4S)$
−0.10±0.15±0.09	AUBERT	07O	BABR	$e^+e^- \to \Upsilon(4S)$

$S_{a_1\pi}$ $(B^0 \to a_1(1260)^+\pi^-)$

VALUE	DOCUMENT ID		TECN	COMMENT
−0.2 ±0.4 OUR AVERAGE Error includes scale factor of 3.2.				
−0.51±0.14±0.08	DALSENO	12	BELL	$e^+e^- \to \Upsilon(4S)$
0.37±0.21±0.07	AUBERT	07O	BABR	$e^+e^- \to \Upsilon(4S)$

$\Delta C_{a_1\pi}$ $(B^0 \to a_1(1260)^+\pi^-)$

$\Delta C_{a_1\pi}$ describes the asymmetry between the rates $\Gamma(B^0 \to a_1^+\pi^-) + \Gamma(\overline{B}^0 \to a_1^-\pi^+)$ and $\Gamma(B^0 \to a_1^-\pi^+) + \Gamma(\overline{B}^0 \to a_1^+\pi^-)$.

VALUE	DOCUMENT ID		TECN	COMMENT
0.43±0.14 OUR AVERAGE Error includes scale factor of 1.3.				
0.54±0.11±0.07	DALSENO	12	BELL	$e^+e^- \to \Upsilon(4S)$
0.26±0.15±0.07	AUBERT	07O	BABR	$e^+e^- \to \Upsilon(4S)$

$\Delta S_{a_1\pi}$ $(B^0 \to a_1(1260)^+\pi^-)$

$\Delta S_{a_1\pi}$ is related to the strong phase difference between the amplitudes contributing to $B^0 \to a_1\pi$ decays.

VALUE	DOCUMENT ID		TECN	COMMENT
−0.11±0.12 OUR AVERAGE				
−0.09±0.14±0.06	DALSENO	12	BELL	$e^+e^- \to \Upsilon(4S)$
−0.14±0.21±0.06	AUBERT	07O	BABR	$e^+e^- \to \Upsilon(4S)$

$C(B^0 \to b_1^- K^+)$

VALUE	DOCUMENT ID		TECN	COMMENT
−0.22±0.23±0.05	AUBERT	07BI	BABR	$e^+e^- \to \Upsilon(4S)$

$\Delta C(B^0 \to b_1^- \pi^+)$

VALUE	DOCUMENT ID		TECN	COMMENT
−1.04±0.23±0.08	AUBERT	07BI	BABR	$e^+e^- \to \Upsilon(4S)$

$C_{\rho^0\rho^0}(B^0 \to \rho^0\rho^0)$

VALUE	DOCUMENT ID		TECN	COMMENT
0.2±0.8±0.3	AUBERT	08BB	BABR	$e^+e^- \to \Upsilon(4S)$

$S_{\rho^0\rho^0}(B^0 \to \rho^0\rho^0)$

VALUE	DOCUMENT ID		TECN	COMMENT
0.3±0.7±0.2	AUBERT	08BB	BABR	$e^+e^- \to \Upsilon(4S)$

$C_{\rho\rho}(B^0 \to \rho^+\rho^-)$

VALUE	DOCUMENT ID		TECN	COMMENT
0.00±0.09 OUR AVERAGE				
0.00±0.10±0.06	[1] VANHOEFER	16	BELL	$e^+e^- \to \Upsilon(4S)$
0.01±0.15±0.06	AUBERT	07BF	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
−0.16±0.21±0.08	[1] SOMOV	07	BELL	Repl. by VANHOEFER 16
−0.00±0.30±0.09	[1] SOMOV	06	BELL	Repl. by SOMOV 07
−0.03±0.18±0.09	AUBERT,B	05C	BABR	Repl. by AUBERT 07BF
−0.17±0.27±0.14	AUBERT,B	04R	BABR	Repl. by AUBERT,B 05C

[1] BELLE Collab. quotes A_{CP} which is equal to $-C$.

$S_{\rho\rho}(B^0 \to \rho^+\rho^-)$

VALUE	DOCUMENT ID		TECN	COMMENT
−0.14±0.13 OUR AVERAGE				
−0.13±0.15±0.05	VANHOEFER	16	BELL	$e^+e^- \to \Upsilon(4S)$
$-0.17\pm0.20^{+0.05}_{-0.06}$	AUBERT	07BF	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.19±0.30±0.08	SOMOV	07	BELL	Repl. by VANHOEFER 16
0.08±0.41±0.09	SOMOV	06	BELL	Repl. by SOMOV 07
$-0.33\pm0.24^{+0.08}_{-0.14}$	AUBERT,B	05C	BABR	Repl. by AUBERT 07BF
−0.42±0.42±0.14	AUBERT,B	04R	BABR	Repl. by AUBERT,B 05C

$|\lambda|(B^0 \to J/\psi K^*(892)^0)$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.25	95	[1] AUBERT,B	04H	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses the measured cosine coefficients C and $\overline{C}$ and assumes $|q/p| = 1$.

cos 2β ($B^0 \to J/\psi K^*(892)^0$)

β (ϕ_1) is one of the angles of CMK unitarity triangle, see the review on "*CP*" Violation in the Reviews section.

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
1.7 $^{+0.7}_{-0.9}$ OUR AVERAGE Error includes scale factor of 1.6.				
$2.72^{+0.50}_{-0.79}\pm0.27$	[1] AUBERT	05P	BABR	$e^+e^- \to \Upsilon(4S)$
$0.87\pm0.74\pm0.12$	[2] ITOH	05	BELL	$e^+e^- \to \Upsilon(4S)$

[1] The measurement is obtained when sin 2β is fixed to 0.726 and the sign of cos 2β is positive with 86% confidence level.

[2] The measurement is obtained with sin 2β fixed to 0.731.

cos 2β ($B^0 \to [K^0_S\pi^+\pi^-]_{D^{(*)}} h^0$)

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$0.91\pm0.22\pm0.11$	[1] ADACHI	18		$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$1.06\pm0.33^{+0.21}_{-0.15}$	[2] VOROBYEV	16	BELL	$e^+e^- \to \Upsilon(4S)$
$0.42\pm0.49\pm0.16$	[3] AUBERT	07BH	BABR	$e^+e^- \to \Upsilon(4S)$
$1.87^{+0.40}_{-0.53}{}^{+0.22}_{-0.32}$	[4] KROKOVNY	06	BELL	Repl. by VOROBYEV 16

[1] Analyzes joint data sample of Belle and BaBar using Dalitz plot analysis of $D \to K^0_S\pi^+\pi^-$; the second error combines experimental systematic uncertainty and the Dalitz plot model uncertainty.

[2] A model-independent measurement uses the binned Dalitz plot technique.

[3] AUBERT 07BH evaluates the likelihoods for the positive and negative solutions assuming sin(2 β_{eff}) = 0.678. It quotes $L_+ / (L_+ + L_-) = 0.86$ corresponding to a likelihood ratio of $L_+/L_- = 6.14$ in favor of the positive solution.

[4] KROKOVNY 06 evaluates the likelihoods for the positive and negative solutions assuming sin(2 β_{eff}) = 0.689. It quotes $L_+ / (L_+ + L_-) = 0.983$ corresponding to a likelihood ratio of $L_+/L_- = 57.8$ in favor of the positive solution.

($S_+ + S_-$)/2 ($B^0 \to D^{*-}\pi^+$)

$S_\pm = -\frac{2Im(\lambda_\pm)}{1+|\lambda_\pm|^2}$ where λ_+ and λ_- are defined in the $C_{\pi\pi}$ datablock above for $B^0 \to D^{*-}\pi^+$ and $\overline{B}^0 \to D^{*+}\pi^-$.

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
-0.039 ± 0.011 OUR AVERAGE				
$-0.046\pm0.013\pm0.015$	[1] BAHINIPATI	11	BELL	$e^+e^- \to \Upsilon(4S)$
$-0.040\pm0.023\pm0.010$	[2] AUBERT	06Y	BABR	$e^+e^- \to \Upsilon(4S)$
$-0.034\pm0.014\pm0.009$	[1] AUBERT	05Z	BABR	$e^+e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$-0.039\pm0.020\pm0.013$	[3] RONGA	06	BELL	Repl. by BAHINIPATI 11
$-0.030\pm0.028\pm0.018$	[1] GERSHON	05	BELL	Repl. by RONGA 06
$-0.068\pm0.038\pm0.020$	[2] AUBERT	04V	BABR	Repl. by AUBERT 06Y
$-0.063\pm0.024\pm0.014$	[1] AUBERT	04W	BABR	Repl. by AUBERT 05Z
$0.060\pm0.040\pm0.019$	[2] SARANGI	04	BELL	Repl. by RONGA 06

[1] Uses partially reconstructed $B^0 \to D^{*\pm}\pi^\mp$ decays.

[2] Uses fully reconstructed $B^0 \to D^{*\pm}\pi^\mp$ decays.

[3] Combines the results from fully reconstructed and partially reconstructed $D^*\pi$ events by taking weighted averages. Assumes that systematic errors from physics parameters and fit biases in the two measurements are 100% correlated.

$(S_- - S_+)/2$ $(B^0 \to D^{*-}\pi^+)$

VALUE	DOCUMENT ID		TECN	COMMENT
−0.009±0.015 OUR AVERAGE				
−0.015±0.013±0.015	[1] BAHINIPATI	11	BELL	$e^+e^- \to \Upsilon(4S)$
0.049±0.042±0.015	[2] AUBERT	06Y	BABR	$e^+e^- \to \Upsilon(4S)$
−0.019±0.022±0.013	[1] AUBERT	05Z	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
−0.011±0.020±0.013	[3] RONGA	06	BELL	Repl. by BAHINIPATI 11
−0.005±0.028±0.018	[1] GERSHON	05	BELL	Repl. by RONGA 06
0.031±0.070±0.033	[2] AUBERT	04V	BABR	Repl. by AUBERT 06Y
−0.004±0.037±0.014	[1] AUBERT	04W	BABR	Repl. by AUBERT 05Z
0.049±0.040±0.019	[2] SARANGI	04	BELL	Repl. by RONGA 06

[1] Uses partially reconstructed $B^0 \to D^{*\pm}\pi^{\mp}$ decays.

[2] Uses fully reconstructed $B^0 \to D^{*\pm}\pi^{\mp}$ decays.

[3] Combines the results from fully reconstructed and partially reconstructed $D^*\pi$ events by taking weighted averages. Assumes that systematic errors from physics parameters and fit biases in the two measurements are 100% correlated.

$(S_+ + S_-)/2$ $(B^0 \to D^-\pi^+)$

VALUE	DOCUMENT ID		TECN	COMMENT
−0.046±0.023 OUR AVERAGE				
−0.010±0.023±0.07	[1] AUBERT	06Y	BABR	$e^+e^- \to \Upsilon(4S)$
−0.050±0.021±0.012	[2] RONGA	06	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
−0.022±0.038±0.020	[1] AUBERT	04V	BABR	Repl. by AUBERT 06Y
−0.062±0.037±0.018	[1] SARANGI	04	BELL	Repl. by RONGA 06

[1] Uses fully reconstructed $B^0 \to D^{\pm}\pi^{\mp}$ decays.

[2] Combines the results from fully reconstructed and partially reconstructed $D\pi$ events by taking weighted averages. Assumes that systematic errors from physics parameters and fit biases in the two measurements are 100% correlated.

$(S_- - S_+)/2$ $(B^0 \to D^-\pi^+)$

VALUE	DOCUMENT ID		TECN	COMMENT
−0.022±0.021 OUR AVERAGE				
−0.033±0.042±0.012	[1] AUBERT	06Y	BABR	$e^+e^- \to \Upsilon(4S)$
−0.019±0.021±0.012	[2] RONGA	06	BELL	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.025±0.068±0.033	[1] AUBERT	04V	BABR	Repl. by AUBERT 06Y
−0.025±0.037±0.018	[1] SARANGI	04	BELL	Repl. by RONGA 06

[1] Uses fully reconstructed $B^0 \to D^{\pm}\pi^{\mp}$ decays.

[2] Combines the results from fully reconstructed and partially reconstructed $D\pi$ events by taking weighted averages. Assumes that systematic errors from physics parameters and fit biases in the two measurements are 100% correlated.

S_+ $(B^0 \to D^-\pi^+)$

VALUE	DOCUMENT ID		TECN	COMMENT
0.058±0.020±0.011	[1] AAIJ	18Z	LHCB	pp at 7, 8 TeV

[1] Measured in the simultaneous analysis of $B^0 \to D^{\mp}\pi^{\pm}$ decays. AAIJ 18Z reports a statistical (systematic) correlation of 0.6 (−0.41) with the measured value of $S_-(B^0 \to D^+\pi^-)$.

S_- $(B^0 \to D^+\pi^-)$

VALUE		*DOCUMENT ID*		*TECN*	*COMMENT*
0.038±0.020±0.007	[1]	AAIJ	18Z	LHCB	pp at 7, 8 TeV

[1] Measured in the simultaneous analysis of $B^0 \to D^{\mp}\pi^{\pm}$ decays. AAIJ 18Z reports a statistical (systematic) correlation of 0.6 (−0.41) with the measured value of $S_+(B^0 \to D^-\pi^+)$.

$(S_+ + S_-)/2$ $(B^0 \to D^-\rho^+)$

VALUE		*DOCUMENT ID*		*TECN*	*COMMENT*
−0.024±0.031±0.009	[1]	AUBERT	06Y	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses fully reconstructed $B^0 \to D^-\rho^+$ decays.

$(S_- - S_+)/2$ $(B^0 \to D^-\rho^+)$

VALUE		*DOCUMENT ID*		*TECN*	*COMMENT*
−0.098±0.055±0.018	[1]	AUBERT	06Y	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses fully reconstructed $B^0 \to D^-\rho^+$ decays.

$C_{\eta_c K^0_S}$ $(B^0 \to \eta_c K^0_S)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.080±0.124±0.029	AUBERT	09K	BABR	$e^+e^- \to \Upsilon(4S)$

$S_{\eta_c K^0_S}$ $(B^0 \to \eta_c K^0_S)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.925±0.160±0.057	AUBERT	09K	BABR	$e^+e^- \to \Upsilon(4S)$

$C_{c\overline{c}K^{(*)0}}$ $(B^0 \to c\overline{c}K^{(*)0})$

"OUR EVALUATION" is an average using rescaled values of the data listed below. The average and rescaling were performed by the Heavy Flavor Averaging Group (HFLAV) and are described at https://hflav.web.cern.ch/. The averaging/rescaling procedure takes into account correlations between the measurements.

VALUE (units 10^{-2})		*DOCUMENT ID*		*TECN*	*COMMENT*
− 0.5± 1.5 OUR EVALUATION					
0.0± 1.4 OUR AVERAGE					
− 1.7± 2.9	[1,2]	AAIJ	17BN	LHCB	pp at 7, 8 TeV
− 0.6± 1.6±1.2	[3]	ADACHI	12A	BELL	$e^+e^- \to \Upsilon(4S)$
$-29\ ^{+53}_{-44}\ \pm 6$	[4]	AUBERT	09AU	BABR	$e^+e^- \to \Upsilon(4S)$
2.4± 2.0±1.6	[5]	AUBERT	09K	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
− 4 ± 7 ±5	[6]	SAHOO	08	BELL	Repl. by ADACHI 12A
4.9± 2.3±1.8	[5]	AUBERT	07AY	BABR	Repl. by AUBERT 09K
− 1.8± 2.1±1.4	[7]	CHEN	07	BELL	Repl. by ADACHI 12A
− 0.7± 4.1±3.3	[8]	ABE	05B	BELL	Repl. by CHEN 07
5.1± 3.2±1.4	[9]	AUBERT	05F	BABR	Repl. by AUBERT 07AY
5.1± 5.1±2.6	[10]	ABE	02Z	BELL	Repl. by ABE 05B
5.3± 5.4±3.2	[11]	AUBERT	02P	BABR	Repl. by AUBERT 05F

[1] Measurement based on $B^0 \to J/\psi K^0_S$, $B^0 \to \psi(2S) K^0_S$ with $J/\psi \to \mu^+\mu^-$, $J/\psi \to e^+e^-$ and $\psi(2S) \to \mu^+\mu^-$.

[2] AAIJ 17BN provides the correlation coefficient ρ=0.42 between the uncertainties of $S_{B^0 \to c\overline{c}K^{(*)0}}(B^0 \to c\overline{c}K^{(*)0})$ and $C_{c\overline{c}K^{(*)0}}$ $(B^0 \to c\overline{c}K^{(*)0})$ measurements.

[3] Measurement based on $B^0 \to J/\psi K^0_S$, $B^0 \to \psi(2S) K^0_S$, $B^0 \to J/\psi K^0_L$, and $B^0 \to \chi_{c1}(1P) K^0_S$ decays.

[4] Uses Dalitz plot analysis of $B^0 \to K^0 \pi^+ \pi^-$ decays and the first of two equivalent solutions is used.

[5] Measurement based on $B^0 \to c\overline{c}K^{(*)0}$ decays.

[6] Reports value of A of $B^0 \to \psi(2S) K^0$ which is equal to $-C$.

[7] Reports value of A of $B^0 \to J/\psi K^0$ which is equal to $-C$.

[8] Measurement based on 152×10^6 $B\overline{B}$ pairs.

[9] Measurement based on 227×10^6 $B\overline{B}$ pairs.

[10] Measured with both $\eta_f = \pm1$ samples.

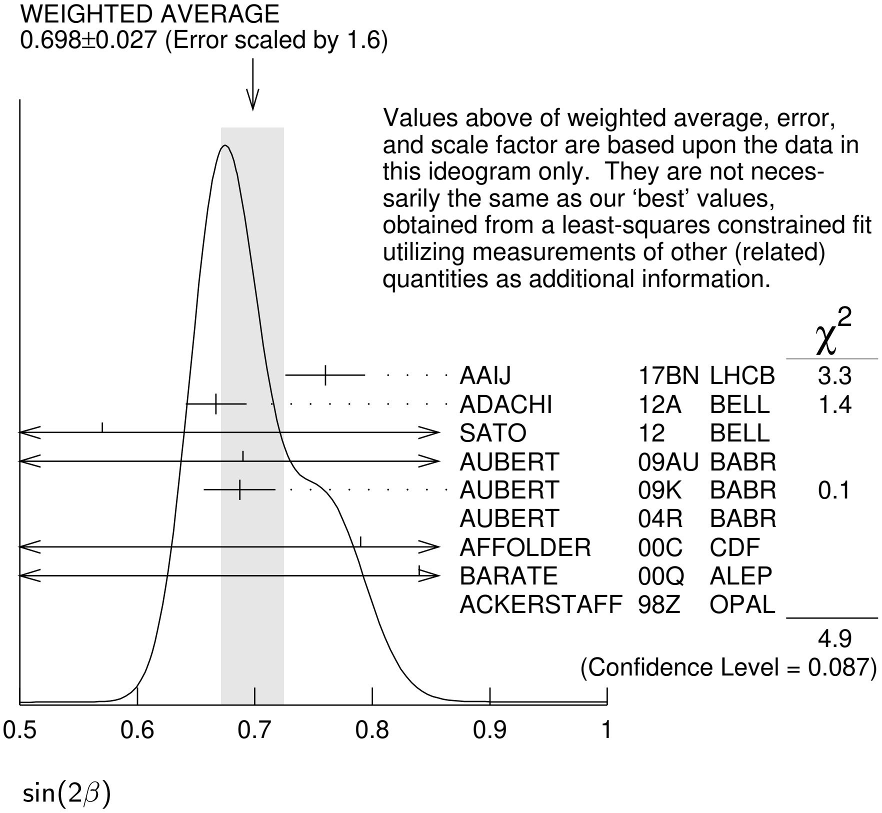
[11] Measured with the high purity of $\eta_f = -1$ samples.

sin(2β)

For a discussion of *CP* violation, see the review on "*CP* Violation" in the Reviews section. sin(2β) is a measure of the *CP*-violating amplitude in the $B^0_d \to J/\psi(1S) K^0_S$.

"OUR EVALUATION" is an average using rescaled values of the data listed below. The average and rescaling were performed by the Heavy Flavor Averaging Group (HFLAV) and are described at https://hflav.web.cern.ch/. The averaging/rescaling procedure takes into account correlations between the measurements.

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.699±0.017 OUR EVALUATION				
0.698±0.027 OUR AVERAGE	Error includes scale factor of 1.6. See the ideogram below.			
0.760±0.034	[1,2] AAIJ	17BN	LHCB	pp at 7, 8 TeV
0.667±0.023±0.012	[3] ADACHI	12A	BELL	$e^+e^- \to \Upsilon(4S)$
0.57 ±0.58 ±0.06	[4] SATO	12	BELL	$e^+e^- \to \Upsilon(5S)$
0.69 ±0.52 ±0.08	[5] AUBERT	09AU	BABR	$e^+e^- \to \Upsilon(4S)$
0.687±0.028±0.012	[6] AUBERT	09K	BABR	$e^+e^- \to \Upsilon(4S)$
1.56 ±0.42 ±0.21	[7] AUBERT	04R	BABR	$e^+e^- \to \Upsilon(4S)$
0.79 $^{+0.41}_{-0.44}$	[8] AFFOLDER	00C	CDF	$p\overline{p}$ at 1.8 TeV
0.84 $^{+0.82}_{-1.04}$ ±0.16	[9] BARATE	00Q	ALEP	$e^+e^- \to Z$
3.2 $^{+1.8}_{-2.0}$ ±0.5	[10] ACKERSTAFF	98Z	OPAL	$e^+e^- \to Z$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.72 ±0.09 ±0.03	[11] SAHOO	08	BELL	Repl. by ADACHI 12A
0.714±0.032±0.018	[6] AUBERT	07AY	BABR	Repl. by AUBERT 09K
0.642±0.031±0.017	CHEN	07	BELL	Repl. by ADACHI 12A
0.728±0.056±0.023	[12] ABE	05B	BELL	Repl. by CHEN 07
0.722±0.040±0.023	[13] AUBERT	05F	BABR	Repl. by AUBERT 07AY
0.99 ±0.14 ±0.06	[14] ABE	02U	BELL	$e^+e^- \to \Upsilon(4S)$
0.719±0.074±0.035	[15] ABE	02Z	BELL	Repl. by ABE 05B
0.59 ±0.14 ±0.05	[16] AUBERT	02N	BABR	$e^+e^- \to \Upsilon(4S)$
0.741±0.067±0.034	[17] AUBERT	02P	BABR	Repl. by AUBERT 05F
0.58 $^{+0.32}_{-0.34}$ $^{+0.09}_{-0.10}$	ABASHIAN	01	BELL	Repl. by ABE 01G
0.99 ±0.14 ±0.06	[18] ABE	01G	BELL	Repl. by ABE 02Z
0.34 ±0.20 ±0.05	AUBERT	01	BABR	Repl. by AUBERT 01B
0.59 ±0.14 ±0.05	[18] AUBERT	01B	BABR	Repl. by AUBERT 02P
1.8 ±1.1 ±0.3	[19] ABE	98U	CDF	Repl. by AFFOLDER 00C



[1] Measurement based on $B^0 \to J/\psi K^0_S$, $B^0 \to \psi(2S) K^0_S$ with $J/\psi \to \mu^+\mu^-$, $J/\psi \to e^+e^-$ and $\psi(2S) \to \mu^+\mu^-$.

[2] AAIJ 17BN provides the correlation coefficient $\rho = 0.42$ between the uncertainties of $\sin(2\beta)$ and $\cos(2\beta)$ measurements.

[3] Measurement based on $B^0 \to J/\psi K^0_S$, $B^0 \to \psi(2S) K^0_S$, $B^0 \to J/\psi K^0_L$, and $B^0 \to \chi_{c1}(1P) K^0_S$ decays.

[4] SATO 12 uses 121 fb^{-1} data collected on $\Upsilon(5S)$ resonance. Uses the "$B-\pi$ tagging" where $B\pi^+$ and $B\pi^-$ tagged $J/\psi K^0_S$ events are compared.

[5] Uses Dalitz plot analysis of $B^0 \to K^0 \pi^+\pi^-$ decays and the first of two equivalent solutions.

[6] Measurement based on $B^0 \to c\overline{c} K^{(*)0}$ decays.

[7] Measurement in which the J/ψ decays to hadrons or to muons that do not satisfy the standard identification criteria.

[8] AFFOLDER 00C uses about 400 $B^0 \to J/\psi(1S) K^0_S$ events. The production flavor of B^0 was determined using three tagging algorithms: a same-side tag, a jet-charge tag, and a soft-lepton tag.

[9] BARATE 00Q uses 23 candidates for $B^0 \to J/\psi(1S) K^0_S$ decays. A combination of jet-charge, vertex-charge, and same-side tagging techniques were used to determine the B^0 production flavor.

[10] ACKERSTAFF 98Z uses 24 candidates for $B^0_d \to J/\psi(1S) K^0_S$ decay. A combination of jet-charge and vertex-charge techniques were used to tag the B^0_d production flavor.

[11] Based on $B^0 \to \psi(2S) K^0_S$ decays.

[12] Measurement based on 152×10^6 $B\overline{B}$ pairs.

[13] Measurement based on 227×10^6 $B\overline{B}$ pairs.

[14] ABE 02U result is based on the same analysis and data sample reported in ABE 01G.

[15] ABE 02Z result is based on 85 × 10^6 $B\overline{B}$ pairs.

[16] AUBERT 02N result based on the same analysis and data sample reported in AUBERT 01B.

[17] AUBERT 02P result is based on 88 × 10^6 $B\overline{B}$ pairs.

[18] First observation of *CP* violation in B^0 meson system.

[19] ABE 98U uses 198 ± 17 $B^0_d \to J/\psi(1S)K^0$ events. The production flavor of B^0 was determined using the same side tagging technique.

$C_{J/\psi(\mathrm{nS})K^0}$ ($B^0 \to J/\psi(\mathrm{nS})K^0$)

"OUR EVALUATION" is an average using rescaled values of the data listed below. The average and rescaling were performed by the Heavy Flavor Averaging Group (HFLAV) and are described at https://hflav.web.cern.ch/. The averaging/rescaling procedure takes into account correlations between the measurements.

VALUE (units 10^{-2})	*DOCUMENT ID*	*TECN*	*COMMENT*
$-$ 0.8± 1.7 OUR EVALUATION			
$-$ 0.5± 1.6 OUR AVERAGE			
-1.7 ± 2.9	[1,2] AAIJ 17BN	LHCB	pp at 7, 8 TeV
$1.5 \pm 2.1^{+2.3}_{-4.5}$	[3,4] ADACHI 12A	BELL	$e^+e^- \to \Upsilon(4S)$
$-10.4 \pm 5.5^{+2.7}_{-4.7}$	[4,5] ADACHI 12A	BELL	$e^+e^- \to \Upsilon(4S)$
$-1.9 \pm 2.6^{+4.1}_{-1.7}$	[4,6] ADACHI 12A	BELL	$e^+e^- \to \Upsilon(4S)$
$8.9 \pm 7.6 \pm 2.0$	[5] AUBERT 09K	BABR	$e^+e^- \to \Upsilon(4S)$
$1.6 \pm 2.3 \pm 1.8$	AUBERT 09K	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
-1.4 ± 3.0	[7] AAIJ 17BN	LHCB	pp at 7, 8 TeV
$-5 \pm 10 \pm 1$	[8] AAIJ 17BN	LHCB	pp at 7, 8 TeV
$-3.8 \pm 3.2 \pm 0.5$	[9] AAIJ 15N	LHCB	Repl. by AAIJ 17BN
$3 \pm 9 \pm 1$	[10] AAIJ 13K	LHCB	Repl. by AAIJ 15N
$-4 \pm 7 \pm 5$	[4,5] SAHOO 08	BELL	Repl. by ADACHI 12A
$-1.8 \pm 2.1 \pm 1.4$	[4] CHEN 07	BELL	Repl. by ADACHI 12A

[1] Measurement based on $B^0 \to J/\psi K^0_S$, $B^0 \to \psi(2S)K^0_S$ with $J/\psi \to \mu^+\mu^-$, $J/\psi \to e^+e^-$ and $\psi(2S) \to \mu^+\mu^-$.

[2] AAIJ 17BN provides the correlation coefficient $\rho = 0.42$ between the uncertainties of $S_{J/\psi(\mathrm{nS})K^0}$ ($B^0 \to J/\psi(\mathrm{nS})K^0$) and $C_{J/\psi(\mathrm{nS})K^0}$ ($B^0 \to J/\psi(\mathrm{nS})K^0$) measurements.

[3] Uses $B^0 \to J/\psi K^0_S$ decays.

[4] The paper reports A, which is equal to $-C$.

[5] Uses $B^0 \to \psi(2S)K^0_S$ decays.

[6] Uses $B^0 \to J/\psi K^0_L$ decays.

[7] Measurement based on $B^0 \to J/\psi K^0_S$ with $J/\psi \to \mu^+\mu^-$ and $J/\psi \to e^+e^-$.

[8] Measurement based on $B^0 \to \psi(2S)K^0_S$ with $\psi(2S) \to \mu^+\mu^-$.

[9] AAIJ 15N uses 41,560 flavor-tagged $B_d \to J/\psi K^0_S$ events from 3 fb^{-1} of integrated luminosity. Provides the correlation coefficient $\rho = 0.483$ between the statistical uncertainties of and measurements.

[10] AAIJ 13K uses 8200 flavor-tagged $B_d \to J/\psi K^0_S$ events from 1 fb^{-1} of integrated luminosity. Provides the correlation coefficient $\rho = 0.42$ between the statistical uncertainties of $S_{J/\psi(\mathrm{nS})K^0}$ ($B^0 \to J/\psi(\mathrm{nS})K^0$) and $C_{J/\psi(\mathrm{nS})K^0}$ ($B^0 \to J/\psi(\mathrm{nS})K^0$) measurements.

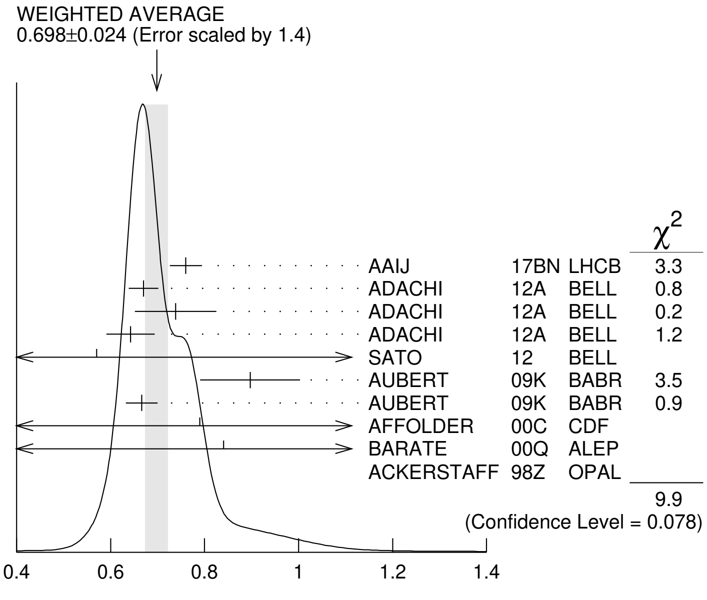
$S_{J/\psi(\mathrm{nS})K^0}$ ($B^0 \to J/\psi(\mathrm{nS})K^0$)

"OUR EVALUATION" is an average using rescaled values of the data listed below. The average and rescaling were performed by the Heavy Flavor Averaging Group (HFLAV) and are described at https://hflav.web.cern.ch/. The averaging/rescaling procedure takes into account correlations between the measurements.

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.701±0.017 OUR EVALUATION			
0.698±0.024 OUR AVERAGE	Error includes scale factor of 1.4. See the ideogram below.		
0.760±0.034	[1,2] AAIJ 17BN	LHCB	pp at 7, 8 TeV
0.670±0.029±0.013	[3] ADACHI 12A	BELL	$e^+e^- \to \Upsilon(4S)$
0.738±0.079±0.036	[4] ADACHI 12A	BELL	$e^+e^- \to \Upsilon(4S)$
0.642±0.047±0.021	[5] ADACHI 12A	BELL	$e^+e^- \to \Upsilon(4S)$
0.57 ±0.58 ±0.06	[6] SATO 12	BELL	$e^+e^- \to \Upsilon(5S)$
0.897±0.100±0.036	[4] AUBERT 09K	BABR	$e^+e^- \to \Upsilon(4S)$
0.666±0.031±0.013	AUBERT 09K	BABR	$e^+e^- \to \Upsilon(4S)$
$0.79\ ^{+0.41}_{-0.44}$	[7] AFFOLDER 00C	CDF	$p\overline{p}$ at 1.8 TeV
$0.84\ ^{+0.82}_{-1.04}\ \pm0.16$	[8] BARATE 00Q	ALEP	$e^+e^- \to Z$
$3.2\ ^{+1.8}_{-2.0}\ \pm0.5$	[9] ACKERSTAFF 98Z	OPAL	$e^+e^- \to Z$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
0.75 ±0.04	[10] AAIJ 17BN	LHCB	pp at 7, 8 TeV
0.84 ±0.10 ±0.01	[11] AAIJ 17BN	LHCB	pp at 7, 8 TeV
0.731±0.035±0.020	[12] AAIJ 15N	LHCB	Repl. by AAIJ 17BN
0.73 ±0.07 ±0.04	[13] AAIJ 13K	LHCB	Repl. by AAIJ 15N
0.650±0.029±0.018	[14] SAHOO 08	BELL	Repl. by ADACHI 12A
0.72 ±0.09 ±0.03	[4] SAHOO 08	BELL	Repl. by ADACHI 12A
0.642±0.031±0.017	CHEN 07	BELL	Repl. by ADACHI 12A



$S_{J/\psi(\mathrm{nS})K^0}$ ($B^0 \to J/\psi(\mathrm{nS})K^0$)

[1] Measurement based on $B^0 \to J/\psi K^0_S$, $B^0 \to \psi(2S)K^0_S$ with $J/\psi \to \mu^+\mu^-$, $J/\psi \to e^+e^-$ and $\psi(2S) \to \mu^+\mu^-$.

[2] AAIJ 17BN provides the correlation coefficient $\rho = 0.42$ between the uncertainties of $S_{J/\psi(\mathrm{nS})K^0}$ ($B^0 \to J/\psi(\mathrm{nS})K^0$) and $C_{J/\psi(\mathrm{nS})K^0}$ ($B^0 \to J/\psi(\mathrm{nS})K^0$) measurements.

[3] Uses $B^0 \to J/\psi K^0_S$ decays.

[4] Based on $B^0 \to \psi(2S)K^0_S$ decays.

[5] Uses $B^0 \to J/\psi K^0_L$ decays.

[6] SATO 12 uses 121 fb^{-1} data collected at $\Upsilon(5S)$ resonance. Uses the "$B-\pi$ tagging" where $B\pi^+$ and $B\pi^-$ tagged $J/\psi K^0_S$ events are compared.

[7] AFFOLDER 00C uses about 400 $B^0 \to J/\psi(1S)K^0_S$ events. The production flavor of B^0 was determined using three tagging algorithms: a same-side tag, a jet-charge tag, and a soft-lepton tag.

[8] BARATE 00Q uses 23 candidates for $B^0 \to J/\psi(1S)K^0_S$ decays. A combination of jet-charge, vertex-charge, and same-side tagging techniques were used to determine the B^0 production flavor.

[9] ACKERSTAFF 98Z uses 24 candidates for $B^0_d \to J/\psi(1S)K^0_S$ decay. A combination of jet-charge and vertex-charge techniques were used to tag the B^0_d production flavor.

[10] Measurement based on $B^0 \to J/\psi K^0_S$ with $J/\psi \to \mu^+\mu^-$ and $J/\psi \to e^+e^-$.

[11] Measurement based on $B^0 \to \psi(2S)K^0_S$ with $\psi(2S) \to \mu^+\mu^-$.

[12] AAIJ 15N uses 41,560 flavor-tagged $B_d \to J/\psi K^0_S$ events from 3 fb^{-1} of integrated luminosity. Provides the correlation coefficient $\rho = 0.483$ between the statistical uncertainties of and measurements.

[13] AAIJ 13K uses 8200 flavor-tagged $B_d \to J/\psi K^0_S$ events from 1 fb^{-1} of integrated luminosity. Provides the correlation coefficient $\rho = 0.42$ between the statistical uncertainties of $S_{J/\psi(\mathrm{nS})K^0}$ ($B^0 \to J/\psi(\mathrm{nS})K^0$) and $C_{J/\psi(\mathrm{nS})K^0}$ ($B^0 \to J/\psi(\mathrm{nS})K^0$) measurements.

[14] Combined result of CHEN 07 and SAHOO 08.

$C_{J/\psi K^{*0}}$ ($B^0 \to J/\psi K^{*0}$)

VALUE		*DOCUMENT ID*		*TECN*	*COMMENT*
0.025±0.083±0.054	[1]	AUBERT	09K	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Based on $B^0 \to J/\psi K^{*0}$, $K^{*0} \to K^0_S\pi^0$.

$S_{J/\psi K^{*0}}$ ($B^0 \to J/\psi K^{*0}$)

VALUE		*DOCUMENT ID*		*TECN*	*COMMENT*
0.601±0.239±0.087	[1,2]	AUBERT	09K	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Based on $B^0 \to J/\psi K^{*0}$, $K^{*0} \to K^0_S\pi^0$.

[2] This $S_{J/\psi K^{*0}}$ value has been corrected for the dilution of the sin(ΔM Δt) coefficient of the *CP* asymmetry by a factor of $1-R_\perp$, which arises from the mixture of *CP*-even and *CP*-odd *B* decay amplitudes.

$C_{\chi_{c0}K^0_S}$ ($B^0 \to \chi_{c0}K^0_S$)

VALUE		*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{-0.29^{+0.53}_{-0.44}\pm0.06}$	[1]	AUBERT	09AU	BABR	$e^+e^- \to \Upsilon(4S)$

[1] Uses Dalitz plot analysis of $B^0 \to K^0\pi^+\pi^-$ decays and the first of two equivalent solutions is used.

$S_{\chi_{c0} K^0_S}$ $(B^0 \to \chi_{c0} K^0_S)$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{-0.69 \pm 0.52 \pm 0.08}$	[1] AUBERT 09AU	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Uses Dalitz plot analysis of $B^0 \to K^0 \pi^+ \pi^-$ decays and the first of two equivalent solutions is used.

$C_{\chi_{c1} K^0_S}$ $(B^0 \to \chi_{c1} K^0_S)$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{0.06 \pm 0.07}$ **OUR AVERAGE**			
$0.017 \pm 0.083^{+0.026}_{-0.046}$	ADACHI 12A	BELL	$e^+ e^- \to \Upsilon(4S)$
$0.129 \pm 0.109 \pm 0.025$	AUBERT 09K	BABR	$e^+ e^- \to \Upsilon(4S)$

$S_{\chi_{c1} K^0_S}$ $(B^0 \to \chi_{c1} K^0_S)$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{0.63 \pm 0.10}$ **OUR AVERAGE**			
$0.640 \pm 0.117 \pm 0.040$	ADACHI 12A	BELL	$e^+ e^- \to \Upsilon(4S)$
$0.614 \pm 0.160 \pm 0.040$	AUBERT 09K	BABR	$e^+ e^- \to \Upsilon(4S)$

$\sin(2\beta_{\mathrm{eff}})(B^0 \to \phi K^0)$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{0.22 \pm 0.27 \pm 0.12}$	AUBERT 07AX	BABR	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.50 \pm 0.25^{+0.07}_{-0.04}$	[1] AUBERT 05T	BABR	Repl. by AUBERT 07AX

[1] Obtained by constraining $C = 0$.

$\sin(2\beta_{\mathrm{eff}})(B^0 \to \phi K^*_0(1430)^0)$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{0.97^{+0.03}_{-0.52}}$	[1] AUBERT 08BG	BABR	$e^+ e^- \to \Upsilon(4S)$

[1] Measured using the *CP*-violation phase difference $\Delta\phi_{00}$ between the B and $\overline{B}$ decay amplitude.

$\sin(2\beta_{\mathrm{eff}})(B^0 \to K^+ K^- K^0_S)$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{0.77 \pm 0.11^{+0.07}_{-0.04}}$	AUBERT 07AX	BABR	$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.55 \pm 0.22 \pm 0.12$	[1] AUBERT 05T	BABR	Repl. by AUBERT 07AX

[1] Obtained by constraining $C = 0$.

$\sin(2\beta_{\mathrm{eff}})(B^0 \to [K^0_S \pi^+ \pi^-]_{D^{(*)}} h^0)$

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{0.80 \pm 0.14 \pm 0.07}$	[1] ADACHI 18		$e^+ e^- \to \Upsilon(4S)$

• • • We do not use the following data for averages, fits, limits, etc. • • •

$0.43 \pm 0.27 \pm 0.08$	[2] VOROBYEV	16	BELL	$e^+e^- \to \Upsilon(4S)$
$0.29 \pm 0.34 \pm 0.06$	AUBERT	07BH	BABR	$e^+e^- \to \Upsilon(4S)$
$0.78 \pm 0.44 \pm 0.22$	KROKOVNY	06	BELL	Repl. by VOROBYEV 16

[1] Analyzes joint data sample of Belle and BaBar using Dalitz plot analysis of $D \to K^0_S \pi^+\pi^-$; the second error combines experimental systematic uncertainty and the Dalitz plot model uncertainty.

[2] A model-independent measurement uses the binned Dalitz plot technique.

$\beta_{\text{eff}}(B^0 \to [K^0_S \pi^+\pi^-]_{D^{(*)}} h^0)$

VALUE (°)	*DOCUMENT ID*		*TECN*	*COMMENT*
$22.5 \pm 4.4 \pm 1.3$	[1] ADACHI	18		$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$11.7 \pm 7.8 \pm 2.1$	[2] VOROBYEV	16	BELL	$e^+e^- \to \Upsilon(4S)$

[1] Analyzes joint data sample of Belle and BaBar using Dalitz plot analysis of $D \to K^0_S \pi^+\pi^-$; the second error combines experimental systematic uncertainty and the Dalitz plot model uncertainty.

[2] A model-independent measurement uses the binned Dalitz plot technique.

$2\beta_{\text{eff}}(B^0 \to J/\psi \rho^0)$

VALUE (°)	*DOCUMENT ID*		*TECN*	*COMMENT*
$41.7 \pm 9.6^{+2.8}_{-6.3}$	AAIJ	15J	LHCB	pp at 7, 8 TeV

$|\lambda|$ $(B^0 \to [K^0_S \pi^+\pi^-]_{D^{(*)}} h^0)$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$1.01 \pm 0.08 \pm 0.02$	AUBERT	07BH	BABR	$e^+e^- \to \Upsilon(4S)$

$|\sin(2\beta + \gamma)|$

β (ϕ_1) and γ (ϕ_3) are angles of CKM unitarity triangle, see the review on "*CP* Violation" in the Reviews section.

VALUE	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
>0.40	90	[1] AUBERT	06Y	BABR	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
>0.77	68	[2] AAIJ	18Z	LHCB	pp at 7, 8 TeV
>0.13	95	[3] RONGA	06	BELL	$e^+e^- \to \Upsilon(4S)$
>0.07	95	[3] RONGA	06	BELL	$e^+e^- \to \Upsilon(4S)$
>0.35	90	[4] AUBERT	05Z	BABR	$e^+e^- \to \Upsilon(4S)$
>0.69	68	[5] AUBERT	04V	BABR	$e^+e^- \to \Upsilon(4S)$
>0.58	95	[6] AUBERT	04W	BABR	Repl. by AUBERT 05Z

[1] Uses fully reconstructed $B^0 \to D^{(*)\pm}\pi^\mp$ and $D^\pm \rho^\mp$ decays and some theoretical assumptions.

[2] Uses a time dependent CP violation measurement in $B^0 \to D^\mp \pi^\pm$ decays with external input and some theoretical assumptions.

[3] Combines the results from fully reconstructed and partially reconstructed $D^{(*)}\pi$ events by taking weighted averages. Assumes that systematic errors from physics parameters and fit biases in the two measurements are 100% correlated.

[4] Uses partially reconstructed $B^0 \to D^{*\pm}\pi^\mp$ decays and some theoretical assumptions.

[5] Uses fully reconstructed $B^0 \to D^{(*)\pm}\pi^\mp$ decays and some theoretical assumptions, such as the SU(3) symmetry relation.

[6] Combining this measurement with the results from AUBERT 04V for fully reconstructed $B^0 \rightarrow D^{(*)\pm}\pi^{\mp}$ and some theoretical assumptions, such as the SU(3) symmetry relation.

$2\beta + \gamma$

VALUE (°)	*DOCUMENT ID*	*TECN*	*COMMENT*
83±53±20	[1] AUBERT 08AC	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Used a time-dependent Dalitz-plot analysis of $B^0 \rightarrow D^{\mp}K^0\pi^{\pm}$ assuming the ratio of the $b \rightarrow u$ and $b \rightarrow c$ decay amplitudes to be 0.3.

α

For angle $\alpha(\phi_2)$ of the CKM unitarity triangle, see the review on "*CP* violation" in the reviews section.

"OUR EVALUATION" is provided by the Heavy Flavor Averaging Group (HFLAV).

VALUE (°)	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{85.2^{+4.8}_{-4.3}}$ **OUR EVALUATION**			
• • • We do not use the following data for averages, fits, limits, etc. • • •			
93.7±10.6	[1] VANHOEFER 16	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
84.9±13.5	[1] VANHOEFER 14	BELL	Repl. by VANHOEFER 16
79 ± 7 ±11	[2] AUBERT 10D	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
$92.4^{+6.0}_{-6.5}$	[1] AUBERT 09G	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
78.6± 7.3	[3] AUBERT 07O	BABR	$e^+e^- \rightarrow \Upsilon(4S)$
88 ±17	[4] SOMOV 06	BELL	Repl. by VANHOEFER 14
100 ±13	[5] AUBERT,B 05C	BABR	Repl. by AUBERT 09G
102^{+16}_{-12} ±14	[6] AUBERT,B 04R	BABR	Repl. by AUBERT,B 05C

[1] Based on an isospin analysis of the $B \rightarrow \rho\rho$ system.

[2] Obtained using the time dependent analysis of $B^0 \rightarrow a_1(1260)^{\pm}\pi^{\mp}$ and branching fraction measurements of $B \rightarrow a_1(1260)K$ and $B \rightarrow K_1\pi$. Uses SU(3) flavor relations.

[3] The angle α_{eff} is obtained using the measured *CP* parameters of $B^0 \rightarrow a_1(1260)^{\pm}\pi^{\mp}$ and choosing one of the four solutions that is compatible with the result of SM-based fits.

[4] Obtained using isospin relation and selecting a solution closest to the CKM best fit average; the 90% CL allowed interval is $59^\circ < \phi_2\ (\equiv \alpha) < 115^\circ$.

[5] Obtained using isospin relation and selecting a solution closest to the CKM best fit average; 90% CL allowed interval is $79^\circ < \alpha < 123^\circ$.

[6] Obtained from the measured *CP* parameters of the longitudinal polarization by selecting the solution closest to the CKM best fit central value of $\alpha = 95^\circ - 98^\circ$.

CP VIOLATION PARAMETERS IN $B^0 \rightarrow D^0 K^{*0}$ DECAY

The parameters r_{B^0} and δ_{B^0} are the magnitude ratio and strong phase difference between the amplitudes of A($B^0 \rightarrow D^0 K^{*0}$) and A($B^0 \rightarrow \overline{D}^0 K^{*0}$). The measured observables and are defined as $x_{\pm} = r_{B^0}\cos(\delta_{B^0} \pm \gamma)$ and $y_{\pm} = r_{B^0}\sin(\delta_{B^0} \pm \gamma)$ where γ is the CKM angle γ.

"OUR EVALUATION" is provided by the Heavy Flavor Averaging Group (HFLAV). The CKM angle γ is listed in the B^+ section for "*CP* VIOLATION PARAMETERS IN $B^+ \rightarrow DK^+$ AND SIMILAR DECAYS."

$x_+(B^0 \to DK^{*0})$

VALUE	DOCUMENT ID		TECN	COMMENT
0.04±0.17 OUR AVERAGE				
0.04±0.16±0.11	[1] AAIJ	16S	LHCB	pp at 7, 8 TeV
0.05±0.35±0.02	AAIJ	16Z	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.05±0.24±0.04	[2] AAIJ	16AA	LHCB	Repl. by AAIJ 16Z

[1] Uses Dalitz plof of $B^0 \to DK^+\pi^-$ with $D \to K^+K^-$, $\pi^+\pi^-$, or $K^+\pi^-$.

[2] Uses Dalitz plot analysis of $D \to K^0_S\pi^+\pi^-$ decays coming from $B^0 \to DK^*(892)^0$ modes.

$x_-(B^0 \to DK^{*0})$

VALUE	DOCUMENT ID		TECN	COMMENT
−0.16±0.14 OUR AVERAGE				
−0.02±0.13±0.14	[1] AAIJ	16S	LHCB	pp at 7, 8 TeV
−0.31±0.20±0.04	AAIJ	16Z	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
−0.15±0.14±0.03	[2] AAIJ	16AA	LHCB	Repl. by AAIJ 16Z

[1] Uses Dalitz plot of $B^0 \to DK^+\pi^-$ with $D \to K^+K^-$, $\pi^+\pi^-$, or $K^+\pi^-$.

[2] Uses Dalitz plot analysis of $D \to K^0_S\pi^+\pi^-$ decays coming from $B^0 \to DK^*(892)^0$ modes.

$y_+(B^0 \to DK^{*0})$

VALUE	DOCUMENT ID		TECN	COMMENT
−0.68±0.22 OUR AVERAGE				
−0.47±0.28±0.22	[1] AAIJ	16S	LHCB	pp at 7, 8 TeV
−0.81±0.28±0.06	AAIJ	16Z	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$-0.65^{+0.24}_{-0.23}\pm0.08$	[2] AAIJ	16AA	LHCB	Repl. by AAIJ 16Z

[1] Uses Dalitz plof of $B^0 \to DK^+\pi^-$ with $D \to K^+K^-$, $\pi^+\pi^-$, or $K^+\pi^-$.

[2] Uses Dalitz plot analysis of $D \to K^0_S\pi^+\pi^-$ decays coming from $B^0 \to DK^*(892)^0$ modes.

$y_-(B^0 \to DK^{*0})$

VALUE	DOCUMENT ID		TECN	COMMENT
0.20±0.25 OUR AVERAGE Error includes scale factor of 1.2.				
−0.35±0.26±0.41	[1] AAIJ	16S	LHCB	pp at 7, 8 TeV
0.31±0.21±0.05	AAIJ	16Z	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.25±0.15±0.06	[2] AAIJ	16AA	LHCB	Repl. by AAIJ 16Z

[1] Uses Dalitz plof of $B^0 \to DK^+\pi^-$ with $D \to K^+K^-$, $\pi^+\pi^-$, or $K^+\pi^-$.

[2] Uses Dalitz plot analysis of $D \to K^0_S\pi^+\pi^-$ decays coming from $B^0 \to DK^*(892)^0$ modes.

$r_{B^0}(B^0 \to DK^{*0})$

"OUR EVALUATION" is provided by the Heavy Flavor Averaging Group (HFLAV).

VALUE	DOCUMENT ID	TECN	COMMENT
$0.257^{+0.021}_{-0.023}$ OUR EVALUATION			

• • • We do not use the following data for averages, fits, limits, etc. • • •

0.39 $\pm$0.13	[1] AAIJ	16AA	LHCB	Repl. by AAIJ 16Z
0.56 $\pm$0.17	[2] AAIJ	16Z	LHCB	pp at 7, 8 TeV

[1] Uses Dalitz plot analysis of $D \to K^0_S \pi^+ \pi^-$ decays coming from $B^0 \to D K^*(892)^0$ modes.

[2] Measurement is performed with $K^+ \pi^-$ masses within 50 MeV of the K^{*0} mass and an absolute value of the cosine of the K^{*0} helicity angle greater than 0.4. Angle γ is required to satisfy $0 < \gamma < 180$ degrees.

$\delta_{B^0}(B^0 \to D K^{*0})$

"OUR EVALUATION" is provided by the Heavy Flavor Averaging Group (HFLAV).

VALUE (°)	*DOCUMENT ID*		*TECN*	*COMMENT*
$194.1^{+9.6}_{-8.8}$ OUR EVALUATION				
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$197\ ^{+24}_{-20}$	[1] AAIJ	16AA	LHCB	Repl. by AAIJ 16Z
$204\ ^{+21}_{-20}$	[2] AAIJ	16Z	LHCB	pp at 7, 8 TeV

[1] Uses Dalitz plot analysis of $D \to K^0_S \pi^+ \pi^-$ decays coming from $B^0 \to D K^*(892)^0$ modes.

[2] Measurement is performed with $K^+ \pi^-$ masses within 50 MeV of the K^{*0} mass and an absolute value of the cosine of the K^{*0} helicity angle greater than 0.4. Angle γ is required to satisfy $0 < \gamma < 180$ degrees.

T and *CPT* VIOLATION PARAMETERS

Measured values of the *T*-, *CP*-, and *CPT*-asymmetry parameters, defined as the differences in $S^{\pm}_{\alpha,\beta}$ and $C^{\pm}_{\alpha,\beta}$ between symmetry-transformed transitions. The indices $\alpha = \ell^+$, ℓ^- and $\beta = K^0_S$, K^0_L stand for reconstructed the flavor final state and the *CP* final states from $\Upsilon(4S)$ decay. The sign $\pm$ indicates whether the decay to the flavor final state α occurs before or after the decay to the *CP* final state.

Alternatively, violations of *CPT* symmetry and Lorentz invariance are searched for by studying interference effects in B^0 mixing. Results are expressed in terms of the standard model extension parameter Δa, which describes the difference between the couplings of the valence quarks within B^0 meson with the Lorentz-violating fields.

ΔS^+_T $(S^-_{\ell^-,K^0_S} - S^+_{\ell^+,K^0_S})$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$-1.37\pm0.14\pm0.06$	LEES	12W	BABR	$e^+ e^- \to \Upsilon(4S)$

ΔS^-_T $(S^+_{\ell^-,K^0_S} - S^-_{\ell^+,K^0_S})$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$1.17\pm0.18\pm0.11$	LEES	12W	BABR	$e^+ e^- \to \Upsilon(4S)$

ΔC^{+}_{T} $(C^{-}_{\ell^-,K^0_S} - C^{+}_{\ell^+,K^0_S})$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.10±0.14±0.08	LEES	12W	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

ΔC^{-}_{T} $(C^{+}_{\ell^-,K^0_S} - C^{-}_{\ell^+,K^0_S})$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.04±0.14±0.08	LEES	12W	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

ΔS^{+}_{CP} $(S^{+}_{\ell^-,K^0_S} - S^{+}_{\ell^+,K^0_S})$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
−1.30±0.11±0.07	LEES	12W	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

ΔS^{-}_{CP} $(S^{-}_{\ell^-,K^0_S} - S^{-}_{\ell^+,K^0_S})$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
1.33±0.12±0.06	LEES	12W	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

ΔC^{+}_{CP} $(C^{+}_{\ell^-,K^0_S} - C^{+}_{\ell^+,K^0_S})$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.07±0.09±0.03	LEES	12W	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

ΔC^{-}_{CP} $(C^{-}_{\ell^-,K^0_S} - C^{-}_{\ell^+,K^0_S})$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.08±0.10±0.04	LEES	12W	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

ΔS^{+}_{CPT} $(S^{-}_{\ell^+,K^0_S} - S^{+}_{\ell^+,K^0_S})$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.16±0.21±0.09	LEES	12W	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

ΔS^{-}_{CPT} $(S^{+}_{\ell^+,K^0_S} - S^{-}_{\ell^+,K^0_S})$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
−0.03±0.13±0.06	LEES	12W	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

ΔC^{+}_{CPT} $(C^{-}_{\ell^+,K^0_S} - C^{+}_{\ell^+,K^0_S})$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.14±0.15±0.07	LEES	12W	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

ΔC^{-}_{CPT} $(C^{+}_{\ell^+,K^0_S} - C^{-}_{\ell^+,K^0_S})$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.03±0.12±0.08	LEES	12W	BABR	$e^+e^- \rightarrow \Upsilon(4S)$

$\Delta a_{\parallel}$ CPT parameter in B^0 mixing

VALUE (10^{-15} GeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
$-$0.10±0.82±0.54	[1] AAIJ	16E	LHCB	pp at 7, 8 TeV

[1] Uses $B^0 \to J/\psi K^0_S$ decays.

$\Delta a_{\perp}$ CPT parameter in B^0 mixing

VALUE (10^{-13} GeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
$-$0.20±0.22±0.04	[1] AAIJ	16E	LHCB	pp at 7, 8 TeV

[1] Uses $B^0 \to J/\psi K^0_S$ decays.

Δa_X CPT parameter in B^0 mixing

VALUE (10^{-15} GeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
+1.97±1.30±0.29	[1] AAIJ	16E	LHCB	pp at 7, 8 TeV

[1] Uses $B^0 \to J/\psi K^0_S$ decays.

Δa_Y CPT parameter in B^0 mixing

VALUE (10^{-15} GeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
+0.44±1.26±0.29	[1] AAIJ	16E	LHCB	pp at 7, 8 TeV

[1] Uses $B^0 \to J/\psi K^0_S$ decays.

$B^0 \to D^{*-} \ell^+ \nu_\ell$ FORM FACTORS

R_1 (form factor ratio ~ V/A_1)

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
1.239±0.029 OUR AVERAGE				
1.229±0.028±0.009	[1] WAHEED	19	BELL	$e^+e^- \to \Upsilon(4S)$
1.56 ±0.07 ±0.15	AUBERT	09A	BABR	$e^+e^- \to \Upsilon(4S)$
1.18 ±0.30 ±0.12	DUBOSCQ	96	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.401±0.034±0.018	[1] DUNGEL	10	BELL	Repl. by WAHEED 19
1.429±0.061±0.044	AUBERT	08R	BABR	Repl. by AUBERT 09A
1.396±0.060±0.044	AUBERT,B	06Z	BABR	Repl. by AUBERT 08R

[1] Uses fully reconstructed $D^{*-}\ell^+\nu$ events ($\ell = e$ or μ).

R_2 (form factor ratio ~ A_2/A_1)

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.84 ±0.04 OUR AVERAGE	Error includes scale factor of 1.8.			
0.852±0.021±0.006	[1] WAHEED	19	BELL	$e^+e^- \to \Upsilon(4S)$
0.66 ±0.05 ±0.09	AUBERT	09A	BABR	$e^+e^- \to \Upsilon(4S)$
0.71 ±0.22 ±0.07	DUBOSCQ	96	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.864±0.024±0.008	[1] DUNGEL	10	BELL	Repl. by WAHEED 19
0.827±0.038±0.022	AUBERT	08R	BABR	Repl. by AUBERT 09A
0.885±0.040±0.026	AUBERT,B	06Z	BABR	Repl. by AUBERT 08R

[1] Uses fully reconstructed $D^{*-}\ell^+\nu$ events ($\ell = e$ or μ).

$\rho^2_{A_1}$ (form factor slope)

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
1.12 ±0.04 OUR AVERAGE	Error includes scale factor of 1.5.			
1.106±0.031±0.007	[1] WAHEED	19	BELL	$e^+e^- \to \Upsilon(4S)$
1.22 ±0.02 ±0.07	AUBERT	09A	BABR	$e^+e^- \to \Upsilon(4S)$
0.91 ±0.15 ±0.06	DUBOSCQ	96	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.214±0.034±0.009	[1] DUNGEL	10	BELL	Repl. by WAHEED 19
1.191±0.048±0.028	AUBERT	08R	BABR	Repl. by AUBERT 09A
1.145±0.059±0.046	AUBERT,B	06Z	BABR	Repl. by AUBERT 08R

[1] Uses fully reconstructed $D^{*-}\ell^+\nu$ events ($\ell = e$ or μ).

PARTIAL BRANCHING FRACTIONS IN $B^0 \to K^{(*)0}\ell^+\ell^-$

B($B^0 \to K^{*0}e^+e^-$) ($0.0009 < q^2 < 1.0$ GeV^2/c^4)

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{3.1^{+0.9+0.2}_{-0.8-0.3}\pm0.2}$	[1] AAIJ	13U	LHCB	pp at 7 TeV

[1] The last uncertainty is due to uncertainties of B($B^0 \to J/\psi K^{*0}$) and B($J/\psi \to e^+e^-$) branching fraction measurements.

B($B^0 \to K^{*0}\ell^+\ell^-$) ($0.1 < q^2 < 2.0$ GeV^2/c^4)

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{1.24^{+0.23}_{-0.27}}$ **OUR AVERAGE**	Error includes scale factor of 1.6.			
$1.14\pm0.11^{+0.11}_{-0.15}$	AAIJ	13Y	LHCB	pp at 7 TeV, $K^{*0}\mu^+\mu^-$
1.80±0.36±0.11	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.48^{+0.14}_{-0.12}\pm0.04$	[1] CHATRCHYAN	13BL	CMS	pp at 7 TeV
1.16±0.23±0.11	AAIJ	12U	LHCB	Repl. by AAIJ 13Y

[1] CHATRCHYAN 13BL uses, for this bin, $1.0 < q^2 < 2.0$ GeV^2/c^4.

B($B^0 \to K^{*0}\ell^+\ell^-$) ($2.0 < q^2 < 4.3$ GeV^2/c^4)

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
0.76 ±0.07 OUR AVERAGE				
0.759±0.115±0.046	KHACHATRY...	16D	CMS	pp at 8 TeV
0.69 ±0.07 ±0.09	AAIJ	13Y	LHCB	pp at 7 TeV, $K^{*0}\mu^+\mu^-$
0.87 ±0.16 ±0.07	CHATRCHYAN	13BL	CMS	pp at 7 TeV
0.84 ±0.28 ±0.06	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.78 ±0.21 ±0.05	AAIJ	12U	LHCB	Repl. by AAIJ 13Y

B($B^0 \to K^{*0}\ell^+\ell^-$) ($4.3 < q^2 < 8.68$ GeV^2/c^4)

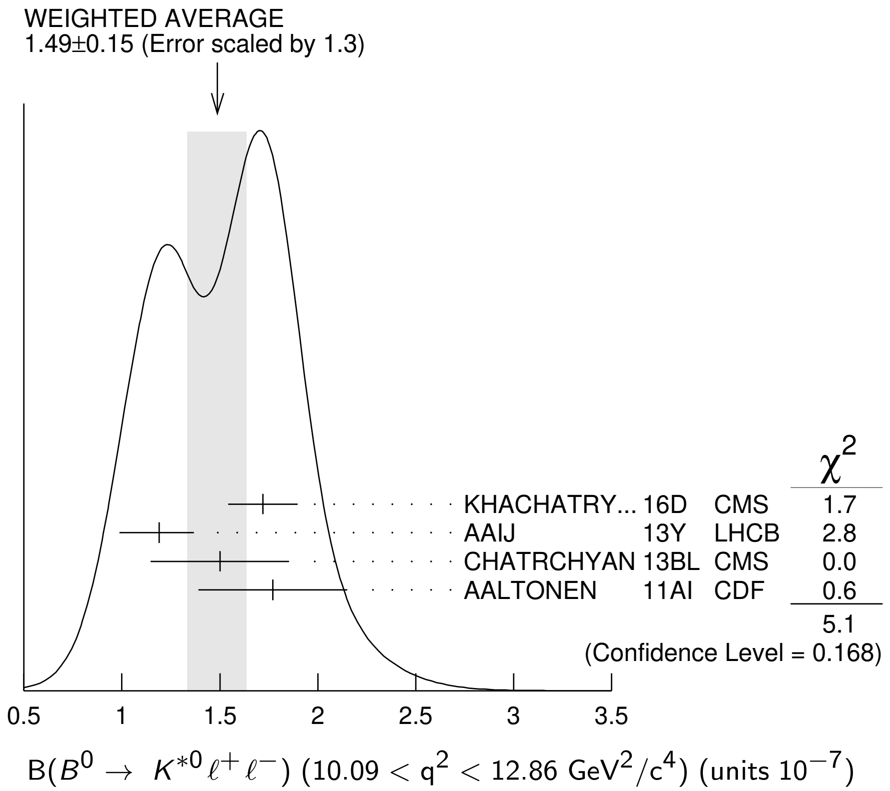
VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.87±0.21 OUR AVERAGE				
$2.15\pm0.18^{+0.22}_{-0.28}$	AAIJ	13Y	LHCB	pp at 7 TeV, $K^{*0}\mu^+\mu^-$
1.62±0.31±0.18	CHATRCHYAN	13BL	CMS	pp at 7 TeV
1.73±0.43±0.15	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV

• • • We do not use the following data for averages, fits, limits, etc. • • •

$3.02 \pm 0.35 \pm 0.22$	AAIJ	12U	LHCB	Repl. by AAIJ 13Y

B($B^0 \to K^{*0} \ell^+ \ell^-$) ($10.09 < q^2 < 12.86$ GeV^2/c^4)

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.49±0.15 OUR AVERAGE	Error includes scale factor of 1.3. See the ideogram below.			
$1.72 \pm 0.11 \pm 0.14$	KHACHATRY...	16D	CMS	pp at 8 TeV
$1.19 \pm 0.11 {}^{+0.14}_{-0.17}$	AAIJ	13Y	LHCB	pp at 7 TeV, $K^{*0} \mu^+ \mu^-$
$1.50 \pm 0.25 \pm 0.25$	CHATRCHYAN	13BL	CMS	pp at 7 TeV
$1.77 \pm 0.36 \pm 0.12$	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.52 \pm 0.25 \pm 0.19$	AAIJ	12U	LHCB	Repl. by AAIJ 13Y



B($B^0 \to K^{*0} \ell^+ \ell^-$) ($14.18 < q^2 < 16.0$ GeV^2/c^4)

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
1.09±0.10 OUR AVERAGE	Error includes scale factor of 1.1.			
$1.22 \pm 0.11 \pm 0.09$	KHACHATRY...	16D	CMS	pp at 8 TeV
$1.02 \pm 0.11 {}^{+0.11}_{-0.15}$	AAIJ	13Y	LHCB	pp at 7 TeV, $K^{*0} \mu^+ \mu^-$
$0.84 {}^{+0.16}_{-0.15} \pm 0.09$	CHATRCHYAN	13BL	CMS	pp at 7 TeV
$1.34 \pm 0.26 \pm 0.08$	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.15 \pm 0.20 \pm 0.09$	AAIJ	12U	LHCB	Repl. by AAIJ 13Y

$B(B^0 \to K^{*0}\ell^+\ell^-)$ $(16.0 < q^2 < 19.0\ \mathrm{GeV}^2/c^4)$

VALUE (units 10^{-7})	*DOCUMENT ID*	*TECN*	*COMMENT*
1.27±0.09 OUR AVERAGE			
1.26±0.09±0.09	KHACHATRY...16D	CMS	pp at 8 TeV
$1.23\pm0.12^{+0.15}_{-0.18}$	AAIJ 13Y	LHCB	pp at 7 TeV, $K^{*0}\mu^+\mu^-$
1.56±0.18±0.15	CHATRCHYAN 13BL	CMS	pp at 7 TeV
0.97±0.26±0.07	AALTONEN 11AI	CDF	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
1.50±0.24±0.15	AAIJ 12U	LHCB	Repl. by AAIJ 13Y

$B(B^0 \to K^*(892)^0\ell^+\ell^-)$ $(15.0 < q^2 < 19.0\ \mathrm{GeV}^2/c^4)$

VALUE (units 10^{-7})	*DOCUMENT ID*	*TECN*	*COMMENT*
1.80 ±0.13 OUR AVERAGE			
$2.2\ ^{+0.5}_{-0.4}\ \pm0.2$	[1] WEHLE 21	BELL	$e^+e^- \to \Upsilon(4S)$
$2.0\ ^{+0.6}_{-0.5}\ \pm0.2$	[2] WEHLE 21	BELL	$e^+e^- \to \Upsilon(4S)$
$1.744^{+0.072}_{-0.076}\pm0.123$	[1] AAIJ 17Q	LHCB	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$1.95\ ^{+0.08}_{-0.09}\ \pm0.13$	[1] AAIJ 16AO	LHCB	Repl. by AAIJ 17Q

[1] Measured with $\mu^+\mu^-$ as lepton pair.
[2] Measured with e^+e^- as lepton pair.

$B(B^0 \to K^{*0}\ell^+\ell^-)$ $(1.0 < q^2 < 6.0\ \mathrm{GeV}^2/c^4)$

VALUE (units 10^{-7})	*DOCUMENT ID*	*TECN*	*COMMENT*
1.74±0.11 OUR AVERAGE			
$1.9\ ^{+0.6}_{-0.5}\ \pm0.3$	[1,2] WEHLE 21	BELL	$e^+e^- \to \Upsilon(4S)$
$1.8\ ^{+0.6}_{-0.6}\ \pm0.2$	[1,3] WEHLE 21	BELL	$e^+e^- \to \Upsilon(4S)$
1.68±0.083±0.12	[1,2] AAIJ 17Q	LHCB	pp at 7, 8 TeV
1.90±0.20	[2] KHACHATRY...16D	CMS	pp at 7, 8 TeV
1.42±0.41 ±0.12	[2] AALTONEN 11AI	CDF	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$1.92^{+0.10}_{-0.09}\ \pm0.14$	AAIJ 16AO	LHCB	Repl. by AAIJ 17Q
$1.70\pm0.15\ ^{+0.20}_{-0.25}$	AAIJ 13Y	LHCB	Repl. by AAIJ 16AO
2.20±0.30 ±0.20	CHATRCHYAN 13BL	CMS	Repl. by KHACHATRYAN 16D
2.10±0.30 ±0.15	AAIJ 12U	LHCB	Repl. by AAIJ 13Y

[1] Result is determined for the range $1.1 < q^2 < 6.0\ \mathrm{GeV}^4/c^2$.
[2] Measured with $\mu^+\mu^-$ as lepton pair.
[3] Measured with e^+e^- as lepton pair.

$B(B^0 \to K^{*0}\ell^+\ell^-)$ $(0.0 < q^2 < 4.3\ \mathrm{GeV}^2/c^4)$

VALUE (units 10^{-7})	*DOCUMENT ID*	*TECN*	*COMMENT*
2.60±0.45±0.17	AALTONEN 11AI	CDF	$p\overline{p}$ at 1.96 TeV

B($B^0 \rightarrow K^{*0}\mu^+\mu^-$)/B($B^0 \rightarrow K^{*0}e^+e^-$) ($0.045 < q^2 < 1.1$ GeV^2/c^4)

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.65^{+0.11}_{-0.07}}$ **OUR AVERAGE**				
$0.46^{+0.55}_{-0.27}\pm0.13$	WEHLE	21	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
$0.66^{+0.11}_{-0.07}\pm0.03$	AAIJ	17W	LHCB	pp at 7, 8 TeV

B($B^0 \rightarrow K^{*0}\mu^+\mu^-$)/B($B^0 \rightarrow K^{*0}e^+e^-$) ($1.1 < q^2 < 6.0$ GeV^2/c^4)

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.71^{+0.12}_{-0.08}}$ **OUR AVERAGE**				
$1.06^{+0.63}_{-0.38}\pm0.13$	WEHLE	21	BELL	$e^+e^- \rightarrow \Upsilon(4S)$
$0.69^{+0.11}_{-0.07}\pm0.05$	AAIJ	17W	LHCB	pp at 7, 8 TeV

B($B^0 \rightarrow K^{*0}\mu^+\mu^-$)/B($B^0 \rightarrow K^{*0}e^+e^-$) ($15.0 < q^2 < 19.0$ GeV^2/c^4)

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{1.12^{+0.61}_{-0.36}\pm0.10}$	WEHLE	21	BELL	$e^+e^- \rightarrow \Upsilon(4S)$

B($B^0 \rightarrow K^0\ell^+\ell^-$) ($q^2 < 2.0$ GeV^2/c^4)

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.24^{+0.22}_{-0.20}}$ **OUR AVERAGE**				
$0.21^{+0.27}_{-0.23}$	AAIJ	12AH	LHCB	pp at 7 TeV
$0.31\pm0.37\pm0.02$	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV

B($B^0 \rightarrow K^0\ell^+\ell^-$) ($2.0 < q^2 < 4.3$ GeV^2/c^4)

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.24^{+0.35}_{-0.30}}$ **OUR AVERAGE**	Error includes scale factor of 1.6.			
$0.07^{+0.25}_{-0.21}$	AAIJ	12AH	LHCB	pp at 7 TeV
$0.93\pm0.49\pm0.07$	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV

B($B^0 \rightarrow K^0\ell^+\ell^-$) ($4.3 < q^2 < 8.68$ GeV^2/c^4)

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{1.08\pm0.27}$ **OUR AVERAGE**				
1.23 ± 0.31	AAIJ	12AH	LHCB	pp at 7 TeV
$0.66\pm0.51\pm0.05$	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV

B($B^0 \rightarrow K^0\ell^+\ell^-$) ($10.09 < q^2 < 12.86$ GeV^2/c^4)

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.27\pm0.27}$ **OUR AVERAGE**	Error includes scale factor of 1.8.			
$0.50^{+0.22}_{-0.19}$	AAIJ	12AH	LHCB	pp at 7 TeV
$-0.03\pm0.22\pm0.01$	AALTONEN	11AI	CDF	$p\overline{p}$ at 1.96 TeV

B($B^0 \to K^0 \ell^+ \ell^-$) ($14.18 < q^2 < 16.0$ GeV^2/c^4)

VALUE (units 10^{-7})	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.29^{+0.21}_{-0.15}$ OUR AVERAGE Error includes scale factor of 1.8.			
$0.20^{+0.13}_{-0.09}$	AAIJ 12AH	LHCB	pp at 7 TeV
$0.73 \pm 0.26 \pm 0.06$	AALTONEN 11AI	CDF	$p\overline{p}$ at 1.96 TeV

B($B^0 \to K^0 \ell^+ \ell^-$) ($q^2 > 16.0$ GeV^2/c^4)

VALUE (units 10^{-7})	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.31^{+0.16}_{-0.12}$ OUR AVERAGE			
$0.35^{+0.21}_{-0.14}$	AAIJ 12AH	LHCB	pp at 7 TeV
$0.21 \pm 0.18 \pm 0.16$	AALTONEN 11AI	CDF	$p\overline{p}$ at 1.96 TeV

B($B^0 \to K^0 \ell^+ \ell^-$) ($1.0 < q^2 < 6.0$ GeV^2/c^4)

VALUE (units 10^{-7})	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.91\ ^{+0.15}_{-0.13}$ OUR AVERAGE			
$0.62\ ^{+0.44}_{-0.32} \pm 0.02$	[1] CHOUDHURY 21	BELL	$e^+ e^- \to \Upsilon(4S)$
$1.12\ ^{+0.50}_{-0.40} \pm 0.04$	[2] CHOUDHURY 21	BELL	$e^+ e^- \to \Upsilon(4S)$
$0.916^{+0.172}_{-0.157} \pm 0.004$	[3] AAIJ 14M	LHCB	pp at 7, 8 TeV
$0.98 \pm 0.61 \pm 0.08$	AALTONEN 11AI	CDF	$p\overline{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$0.65\ ^{+0.45}_{-0.35}$	AAIJ 12AH	LHCB	Repl. by AAIJ 14M

[1] Measured for $B^0 \to K^0_S \mu^+ \mu^-$ decays. Measurements in other q^2 bins are also reported.

[2] Measured for $B^0 \to K^0_S e^+ e^-$ decays. Measurements in other q^2 bins are also reported.

[3] Uses B($B^0 \to J/\psi(1S) K^0$) = $(0.928 \pm 0.013 \pm 0.037) \times 10^{-3}$ for normalisation and $\mu^+ \mu^-$ as a lepton pair. Measured in $1.1 < q^2 < 6.0$ GeV^2/c^4.

B($B^0 \to K^0 \mu^+ \mu^-$) / B($B^0 \to K^0 e^+ e^-$) ($1.0 < q^2 < 6.0$ GeV^2/c^4)

VALUE	*DOCUMENT ID*	*TECN*	*COMMENT*
$0.64^{+0.18}_{-0.13}$ OUR AVERAGE			
$0.66^{+0.20}_{-0.14}{}^{+0.02}_{-0.04}$	[1] AAIJ 22J	LHCB	pp at 7, 8, 13 TeV
$0.55^{+0.46}_{-0.34} \pm 0.01$	[2] CHOUDHURY 21	BELL	$e^+ e^- \to \Upsilon(4S)$

[1] Measured in the range $1.1 < q^2 < 6.0$ GeV^2/c^4.

[2] Measured from the ratio of $K^0_S \mu^+ \mu^-$ and $K^0_S e^+ e^-$. Measurements in other q^2 bins are also reported.

B($B^0 \to K^0 \ell^+ \ell^-$) ($0.0 < q^2 < 4.3$ GeV^2/c^4)

VALUE (units 10^{-7})	*DOCUMENT ID*	*TECN*	*COMMENT*
$1.27 \pm 0.62 \pm 0.10$	AALTONEN 11AI	CDF	$p\overline{p}$ at 1.96 TeV

B($B^0 \to K^0 \ell^+ \ell^-$) ($15.0 < q^2 < 22.0$ GeV^2/c^4)

VALUE (units 10^{-7})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.67^{+0.11}_{-0.11} \pm 0.04}$	[1] AAIJ	14M	LHCB	pp at 7, 8 TeV

[1] Uses B($B^0 \to J/\psi(1S) K^0$) = $(0.928 \pm 0.013 \pm 0.037) \times 10^{-3}$ for normalisation and $\mu^+ \mu^-$ as a lepton pair.

B($B^0 \to K^0 e^+ e^-$) ($1.1 < q^2 < 6.0$ GeV^2/c^4)

VALUE (units 10^{-8})	*DOCUMENT ID*		*TECN*	*COMMENT*
13±3±1	[1] AAIJ	22J	LHCB	pp at 7, 8, 13 TeV

[1] The reported value is converted from the measured $dB/dq^2 = (2.6 \pm 0.6 \pm 0.1) \times 10^{-8}$ (GeV^2/c^4)$^{-1}$ by multiplying by the $\Delta q^2 = 4.9$ GeV^2/c^4 range.

B($B^0 \to K^*_{0,2}(1430)^0 \mu^+ \mu^-$) ($1.10 < q^2 < 6.00$ GeV^2/c^4)

VALUE (units 10^{-8})	*DOCUMENT ID*		*TECN*	*COMMENT*
4.02±0.44±0.31	[1,2] AAIJ	16AP	LHCB	pp at 7, 8 TeV

[1] Measured the differential branching fraction and angular moments of the decay $B^0 \to K^+ \pi^- \mu^+ \mu^-$ in the $K^+ \pi^-$ invariant mass range $1330 < m(K^+ \pi^-) < 1530$ MeV/c^2.

[2] The reported value is converted from the measured $dB/dq^2 = (0.82 \pm 0.09 \pm 0.063) \times 10^{-8}$ (GeV^2/c^4)$^{-1}$ by multiplying by the $\Delta q^2 = 4.9$ GeV^2/c^4 range.

F$_H$($B^0 \to K^0 \mu^+ \mu^-$) ($1.1 < q^2 < 6.0$ GeV^2/c^4)

F$_H$ is a fractional contribution of (pseudo) scalar and tensor amplitudes to the decay width in the massless muon approximation.

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.78±0.46±0.09	[1] AAIJ	14O	LHCB	pp at 7, 8 TeV

[1] AAIJ 14O reports 68% C.L. interval, which we encode as midpoint with uncertainty as half of the width of interval.

F$_H$($B^0 \to K^0 \mu^+ \mu^-$) ($15.0 < q^2 < 22.0$ GeV^2/c^4)

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.34±0.25±0.03	[1] AAIJ	14O	LHCB	pp at 7, 8 TeV

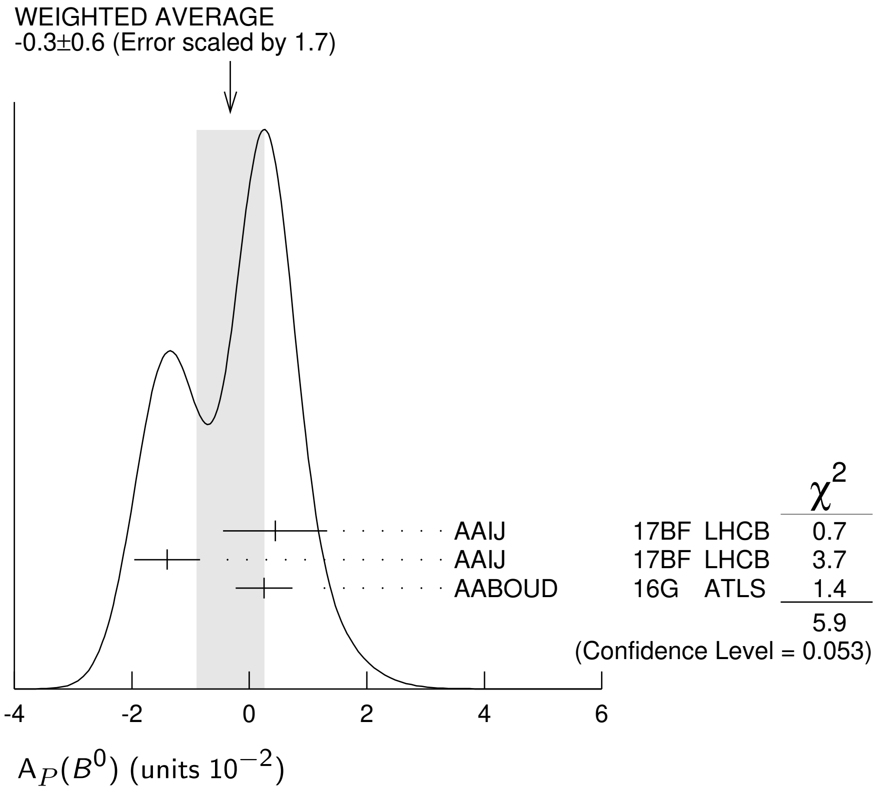
[1] AAIJ 14O reports 68% C.L. interval, which we encode as midpoint with uncertainty as half of the width of interval.

PRODUCTION ASYMMETRIES

A$_P$(B^0)

$A_P(B^0) = [\sigma(\overline{B}^0) - \sigma(B^0)] \;/\; [\sigma(\overline{B}^0) + \sigma(B^0)]$

VALUE (units 10^{-2})	*DOCUMENT ID*		*TECN*	*COMMENT*
−0.3 ±0.6 OUR AVERAGE	Error includes scale factor of 1.7. See the ideogram below.			
0.44±0.88±0.11	[1] AAIJ	17BF	LHCB	pp at 7 TeV
−1.40±0.55±0.10	[1] AAIJ	17BF	LHCB	pp at 8 TeV
0.25±0.48±0.05	[2] AABOUD	16G	ATLS	pp at 7, 8 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
−0.35±0.76±0.28	[3] AAIJ	14BP	LHCB	Repl. by AAIJ 17BF, pp at 7 TeV



[1] AAIJ 17BF uses $B^0 \rightarrow J/\psi K^{*0}$ decays with B^0 transverse momenta p_T and rapidities y in the region of $0 < p_T < 30$ GeV/c and $2.1 < y < 4.5$.

[2] Based on time-dependent analysis of $B^0 \rightarrow J/\psi K^{*0}$ decay in kinematic range $p_T >$ 10 GeV/c and $|\eta| < 2.5$.

[3] Based on time-dependent analysis of $B^0 \rightarrow J/\psi K^{*0}$ and $B^0 \rightarrow D^- \pi^+$ in kinematic range $4 < p_T < 30$ GeV/c and $2.5 < \eta < 4.5$.

$A(B^0+\overline{B}^0)$ in $K^0_S K^{\mp}\pi^{\pm}$

$A(B^0+\overline{B}^0) = [n(K^0_S K^- \pi^+) - n(K^0_S K^+ \pi^-)] / [n(K^0_S K^- \pi^+) + n(K^0_S K^+ \pi^-)]$

VALUE (units 10^{-2})	*DOCUMENT ID*		*TECN*	*COMMENT*
−8.5±8.9±0.2	LAI	19	BELL	$e^+ e^- \rightarrow \Upsilon(4S)$

B^0 REFERENCES

AAIJ	22	PRL 128 041801	R. Aaij *et al.*	(LHCb Collab.)
Also		PR D105 012010	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	22J	PRL 128 191802	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	22N	PR D105 072005	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	22Q	JHEP 2203 109	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	22S	JHEP 2205 067	R. Aaij *et al.*	(LHCb Collab.)
BLOOMFIELD	22	PR D105 072007	T. Bloomfield *et al.*	(BELLE Collab.)
HADJIVASILIOU	22	PR D105 L051101	C. Hadjivasiliou *et al.*	(BELLE Collab.)
JEON	22	PR D106 012006	H.B. Jeon *et al.*	(BELLE Collab.)
TUMASYAN	22AI	EPJ C82 499	A. Tumasyan *et al.*	(CMS Collab.)
WAHEED	22	PR D105 012003	E. Waheed *et al.*	(BELLE Collab.)
AAIJ	21K	CP C45 043001	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	21O	JHEP 2103 075	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	21S	JHEP 2106 177	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	21W	EPJ C81 314	R. Aaij *et al.*	(LHCb Collab.)
ATMACAN	21	PR D104 L091105	H. Atmacan *et al.*	(BELLE Collab.)
CAO	21A	PR D104 012008	L. Cao *et al.*	(BELLE Collab.)

CHOUDHURY	21	JHEP 2103 105	S. Choudhury *et al.*	(BELLE Collab.)
KANG	21	PR D103 032003	K.H. Kang *et al.*	(BELLE Collab.)
MOHANTY	21	PR D103 052013	S. Mohanty *et al.*	(BELLE Collab.)
WAHEED	21	PR D103 079901	E. Waheed *et al.*	(BELLE Collab.)
WEHLE	21	PRL 126 161801	S. Wehle *et al.*	(BELLE Collab.)
AAIJ	20AG	PR D102 051102	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	20AN	JHEP 2012 139	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	20AO	JHEP 2012 081	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	20F	PR D102 012011	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	20L	JHEP 2003 147	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	20W	PRL 124 211802	R. Aaij *et al.*	(LHCb Collab.)
CHILIKIN	20	JHEP 2005 034	K. Chilikin *et al.*	(BELLE Collab.)
CHU	20	PR D101 052012	K. Chu *et al.*	(BELLE Collab.)
KU	20	PR D102 012003	Y. Ku *et al.*	(BELLE Collab.)
SIRUNYAN	20AG	JHEP 2004 188	A.M. Sirunyan *et al.*	(CMS Collab.)
AABOUD	19L	JHEP 1904 098	M. Aaboud *et al.*	(ATLAS Collab.)
AAIJ	19AK	PRL 123 211801	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	19AP	JHEP 1912 155	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	19J	JHEP 1905 026	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	19L	JHEP 1907 032	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	19N	JHEP 1908 041	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	19U	PRL 122 191804	R. Aaij *et al.*	(LHCb Collab.)
CHILIKIN	19	PR D100 012001	K. Chilikin *et al.*	(BELLE Collab.)
CHOU	19	PR D100 012002	P.-C. Chou *et al.*	(BELLE Collab.)
GARG	19	PR D99 071102	R. Garg *et al.*	(BELLE Collab.)
LAI	19	PR D100 011101	Y.-T. Lai *et al.*	(BELLE Collab.)
LI	19C	PR D100 031101	Y.B. Li *et al.*	(BELLE Collab.)
PAL	19	PR D99 091104	B. Pal *et al.*	(BELLE Collab.)
WAHEED	19	PR D100 052007	E. Waheed *et al.*	(BELLE Collab.)
WATANUKI	19	PR D99 032012	S. Watanuki *et al.*	(BELLE Collab.)
YUSA	19	PR D99 011102	Y. Yusa *et al.*	(BELLE Collab.)
AABOUD	18BY	JHEP 1810 047	M. Aaboud *et al.*	(ATLAS Collab.)
AAIJ	18AN	EPJ C78 1019	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	18AY	PR D98 071103	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	18AZ	PR D98 072006	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	18D	PRL 120 171802	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	18F	PRL 120 261801	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	18O	PR D98 032004	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	18T	JHEP 1803 078	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	18Z	JHEP 1806 084	R. Aaij *et al.*	(LHCb Collab.)
ABAZOV	18B	PR D98 052010	V.M. Abazov *et al.*	(D0 Collab.)
ADACHI	18	PR D98 112012	I. Adachi *et al.*	(BELLE and BABAR Collabs.)
Also		PRL 121 261801	I. Adachi *et al.*	(BELLE and BABAR Collabs.)
LEES	18C	PR D98 071102	J.P. Lees *et al.*	(BABAR Collab.)
LI	18D	EPJ C78 928	Y.B. Li *et al.*	(BELLE Collab.)
NAKANO	18	PR D97 092003	H. Nakano *et al.*	(BELLE Collab.)
PAL	18	PR D98 112008	B. Pal *et al.*	(BELLE Collab.)
PDG	18	PR D98 030001	M. Tanabashi *et al.*	(PDG Collab.)
SANDILYA	18	PR D98 071101	S. Sandilya *et al.*	(BELLE Collab.)
SIRUNYAN	18BY	EPJ C78 457	A.M. Sirunyan *et al.*	(CMS Collab.)
SIRUNYAN	18DF	EPJ C78 939	A.M. Sirunyan *et al.*	(CMS Collab.)
VOSSEN	18	PR D98 012005	A. Vossen *et al.*	(BELLE Collab.)
AAIJ	17A	PR D95 012006	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	17AI	PRL 118 191801	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	17AJ	PRL 118 251802	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	17BD	PR D96 051103	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	17BF	PL B774 139	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	17BJ	PRL 119 232001	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	17BN	JHEP 1711 170	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	17BP	JHEP 1711 027	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	17G	PRL 118 081801	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	17N	JHEP 1703 001	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	17Q	JHEP 1704 142	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	17W	JHEP 1708 055	R. Aaij *et al.*	(LHCb Collab.)
GRYGIER	17	PR D96 091101	J. Grygier *et al.*	(BELLE Collab.)
HORIGUCHI	17	PRL 119 191802	T. Horiguchi *et al.*	(BELLE Collab.)
JULIUS	17	PR D96 032007	T. Julius *et al.*	(BELLE Collab.)
AABOUD	16G	JHEP 1606 081	M. Aaboud *et al.*	(ATLAS Collab.)
AABOUD	16L	EPJ C76 513	M. Aaboud *et al.*	(ATLAS Collab.)
AAIJ	16	JHEP 1601 012	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	16AA	JHEP 1608 137	R. Aaij *et al.*	(LHCb Collab.)

AAIJ	16AN	PRL 117 261801	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	16AO	JHEP 1611 047	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	16AP	JHEP 1612 065	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	16AV	EPJ C76 412	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	16E	PRL 116 241601	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	16S	PR D93 112018	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	16Z	JHEP 1606 131	R. Aaij *et al.*	(LHCb Collab.)
BHARDWAJ	16	PR D93 052016	V. Bhardwaj *et al.*	(BELLE Collab.)
CHOBANOVA	16	PR D93 031101	V. Chobanova *et al.*	(BELLE Collab.)
DEL-AMO-SA...	16	PR D93 052013	P. del Amo Sanchez *et al.*	(BABAR Collab.)
GLATTAUER	16	PR D93 032006	R. Glattauer *et al.*	(BELLE Collab.)
HAMER	16	PR D93 032007	P. Hamer *et al.*	(BELLE Collab.)
KHACHATRY...	16D	PL B753 424	V. Khachatryan *et al.*	(CMS Collab.)
KING	16	PR D93 111101	Z. King *et al.*	(BELLE Collab.)
LEES	16	PRL 116 041801	J.P. Lees *et al.*	(BABAR Collab.)
LEES	16E	PR D94 011101	J.P. Lees *et al.*	(BABAR Collab.)
LEES	16H	PR D94 091101	J.P. Lees *et al.*	(BABAR Collab.)
SATO	16B	PR D94 072007	Y. Sato *et al.*	(BELLE Collab.)
VANHOEFER	16	PR D93 032010	P. Vanhoefer *et al.*	(BELLE Collab.)
Also		PR D94 099903 (errat.)	P. Vanhoefer *et al.*	(BELLE Collab.)
VOROBYEV	16	PR D94 052004	V. Vorobyev *et al.*	(BELLE Collab.)
AAIJ	15AC	JHEP 1505 019	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	15AS	JHEP 1510 053	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	15AZ	PRL 115 161802	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	15BB	PR D92 112002	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	15D	JHEP 1501 024	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	15F	PRL 114 041601	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	15J	PL B742 38	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	15N	PRL 115 031601	R. Aaji *et al.*	(LHCb Collab.)
AAIJ	15Q	PRL 115 111803	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	15S	PL B743 46	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	15T	PL B747 468	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	15X	PR D92 012012	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	15Y	PR D92 032002	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	15Z	JHEP 1504 064	R. Aaij *et al.*	(LHCb Collab.)
ABAZOV	15A	PRL 114 062001	V.M. Abazov *et al.*	(D0 Collab.)
ABDESSALAM	15	PRL 115 121604	A. Abdessalam *et al.*	(BABAR and BELLE Collabs.)
BALA	15	PR D91 051101	A. Bala *et al.*	(BELLE Collab.)
CHANG	15	PRL 115 221803	Y.-Y. Chang *et al.*	(BELLE Collab.)
CHOI	15A	PR D91 092011	S.-K. Choi *et al.*	(BELLE Collab.)
KHACHATRY...	15BE	NAT 522 68	V. Khachatryan *et al.*	(CMS and LHCb Collab.)
LEES	15	PR D91 012003	J.P. Lees *et al.*	(BABAR Collab.)
LEES	15A	PRL 114 081801	J.P. Lees *et al.*	(BABAR Collab.)
LEES	15B	PR D91 031102	J.P. Lees *et al.*	(BABAR Collab.)
LEES	15C	PR D91 052002	J.P. Lees *et al.*	(BABAR Collab.)
MATVIENKO	15	PR D92 012013	D. Matvienko *et al.*	(BELLE Collab.)
PAL	15	PR D92 011101	B. Pal *et al.*	(BELLE Collab.)
WIECHCZYN...	15	PR D91 032008	J. Wiechczynski *et al.*	(BELLE Collab.)
AAIJ	14AA	PRL 112 202001	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	14AM	JHEP 1405 069	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	14AN	JHEP 1409 177	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	14BM	NJP 16 123001	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	14BN	PR D90 112002	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	14BP	PL B739 218	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	14E	JHEP 1404 114	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	14L	JHEP 1407 140	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	14M	JHEP 1406 133	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	14O	JHEP 1405 082	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	14R	PL B736 446	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	14X	PR D90 012003	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	14Y	PRL 112 091802	R. Aaij *et al.*	(LHCb Collab.)
AALTONEN	14P	PRL 113 242001	T. Aaltonen *et al.*	(CDF Collab.)
ABAZOV	14	PR D89 012002	V.M. Abazov *et al.*	(D0 Collab.)
CHILIKIN	14	PR D90 112009	K. Chilikin *et al.*	(BELLE Collab.)
CHOBANOVA	14	PR D90 012002	V. Chobanova *et al.*	(BELLE Collab.)
IWASHITA	14	PTEP 2014 043C01	T. Iwashita *et al.*	(BELLE Collab.)
LAI	14	PR D89 051103	Y.-T. Lai *et al.*	(BELLE Collab.)
LEES	14	PR D89 051101	J.P. Lees *et al.*	(BABAR Collab.)
LEES	14B	PR D89 112002	J.P. Lees *et al.*	(BABAR Collab.)
LEES	14C	PR D89 071102	J.P. Lees *et al.*	(BABAR Collab.)
PDG	14	CP C38 070001	K. Olive *et al.*	(PDG Collab.)

SANTELJ	14	JHEP 1410 165	L. Santelj *et al.*	(BELLE Collab.)
SATO	14	PR D90 072009	S. Sato *et al.*	(BELLE Collab.)
VANHOEFER	14	PR D89 072008	P. Vanhoefer *et al.*	(BELLE Collab.)
AAD	13U	PR D87 032002	G. Aad *et al.*	(ATLAS Collab.)
AAIJ	13	NP B867 1	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13A	NP B867 547	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13AA	NP B871 403	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13AC	NP B874 663	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13AO	PR D87 092001	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13AP	PR D87 092007	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13AQ	PR D87 112009	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13AT	PR D88 052002	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13AW	PRL 110 211801	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13AX	PRL 110 221601	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13B	PRL 110 021801	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13BA	PRL 111 101805	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13BM	PRL 111 141801	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13BO	JHEP 1310 183	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13BP	JHEP 1310 143	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13BQ	JHEP 1310 005	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13BT	PR D88 072005	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13CF	EPJ C73 2655	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13E	PRL 110 031801	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13F	PL B719 318	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13K	PL B721 24	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13L	JHEP 1303 067	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13M	PR D87 052001	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13P	JHEP 1304 001	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13U	JHEP 1305 159	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13Y	JHEP 1308 131	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	13Z	JHEP 1309 006	R. Aaij *et al.*	(LHCb Collab.)
AALTONEN	13F	PR D87 072003	T. Aaltonen *et al.*	(CDF Collab.)
CHATRCHYAN	13AW	PRL 111 101804	S. Chatrchyan *et al.*	(CMS Collab.)
CHATRCHYAN	13BL	PL B727 77	S. Chatrchyan *et al.*	(CMS Collab.)
CHILIKIN	13	PR D88 074026	K. Chilikin *et al.*	(BELLE Collab.)
DALSENO	13	PR D88 092003	J. Dalseno *et al.*	(BELLE Collab.)
DUH	13	PR D87 031103	Y. T. Duh *et al.*	(BELLE Collab.)
GAUR	13	PR D87 091101	V. Gaur *et al.*	(BELLE Collab.)
LEES	13D	PR D87 052009	J.P. Lees *et al.*	(BABAR Collab.)
LEES	13H	PR D87 092004	J.P. Lees *et al.*	(BABAR Collab.)
LEES	13I	PR D87 112005	J.P. Lees *et al.*	(BABAR Collab.)
LEES	13J	PR D88 012003	J.P. Lees *et al.*	(BABAR Collab.)
LEES	13M	PR D88 032012	J.P. Lees *et al.*	(BABAR Collab.)
LEES	13N	PRL 111 101802	J.P. Lees *et al.*	(BABAR Collab.)
Also		PRL 111 159901(errat.)	J.P. Lees *et al.*	(BABAR Collab.)
Also		PR D93 032001	J.P. Lees *et al.*	(BABAR Collab.)
LUTZ	13	PR D87 111103	O. Lutz *et al.*	(BELLE Collab.)
PRIM	13	PR D88 072004	M. Prim *et al.*	(BELLE Collab.)
SIBIDANOV	13	PR D88 032005	A. Sibidanov *et al.*	(BELLE Collab.)
AAIJ	12A	PL B708 55	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	12AH	JHEP 1207 133	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	12AM	PRL 109 131801	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	12AR	JHEP 1210 037	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	12AX	PR D86 112005	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	12E	PL B708 241	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	12I	PL B709 177	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	12L	EPJ C72 2118	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	12T	PRL 108 161801	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	12U	PRL 108 181806	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	12V	PRL 108 201601	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	12W	PRL 108 231801	R. Aaij *et al.*	(LHCb Collab.)
AALTONEN	12L	PRL 108 211803	T. Aaltonen *et al.*	(CDF Collab.)
ABAZOV	12AC	PR D86 072009	V.M. Abazov *et al.*	(D0 Collab.)
ABAZOV	12U	PR D85 112003	V.M. Abazov *et al.*	(D0 Collab.)
ADACHI	12A	PRL 108 171802	I. Adachi *et al.*	(BELLE Collab.)
CHANG	12	PR D85 091102	M.-C. Chang *et al.*	(BELLE Collab.)
CHATRCHYAN	12A	JHEP 1204 033	S. Chatrchyan *et al.*	(CMS Collab.)
DALSENO	12	PR D86 092012	J. Dalseno *et al.*	(BELLE Collab.)
DEL-AMO-SA...	12	PR D85 092017	P. del Amo Sanchez *et al.*	(BABAR Collab.)
HIGUCHI	12	PR D85 071105	T. Higuchi *et al.*	(BELLE Collab.)
HOI	12	PRL 108 031801	C.-T. Hoi *et al.*	(BELLE Collab.)

HSU	12	PR D86 032002	C.-L. Hsu *et al.*	(BELLE Collab.)
KIM	12A	PR D86 031101	J.H. Kim *et al.*	(BELLE Collab.)
KRONENBIT...	12	PR D86 071103	B. Kronenbitter *et al.*	(BELLE Collab.)
LEES	12AA	PR D86 092004	J.P. Lees *et al.*	(BABAR Collab.)
LEES	12AF	PR D86 112006	J.P. Lees *et al.*	(BABAR Collab.)
LEES	12B	PR D85 052003	J.P. Lees *et al.*	(BABAR Collab.)
LEES	12D	PRL 109 101802	J.P. Lees *et al.*	(BABAR Collab.)
Also		PR D88 072012	J.P. Lees *et al.*	(BABAR Collab.)
LEES	12I	PR D85 054023	J.P. Lees *et al.*	(BABAR Collab.)
LEES	12K	PR D85 072005	J.P. Lees *et al.*	(BABAR Collab.)
LEES	12O	PR D85 112010	J.P. Lees *et al.*	(BABAR Collab.)
LEES	12T	PR D86 051105	J.P. Lees *et al.*	(BABAR Collab.)
LEES	12W	PRL 109 211801	J.P. Lees *et al.*	(BABAR Collab.)
NEGISHI	12	PR D86 011101	K. Negishi *et al.*	(BELLE Collab.)
PDG	12	PR D86 010001	J. Beringer *et al.*	(PDG Collab.)
ROHRKEN	12	PR D85 091106	M. Rohrken *et al.*	(BELLE Collab.)
SATO	12	PRL 108 171801	Y. Sato *et al.*	(BELLE Collab.)
AAIJ	11B	PL B699 330	R. Aaij *et al.*	(LHCb Collab.)
AAIJ	11E	PR D84 092001	R. Aaij *et al.*	(LHCb Collab.)
Also		PR D85 039904 (errat.)	R. Aaij *et al.*	(LHCb Collab.)
AALTONEN	11	PRL 106 121804	T. Aaltonen *et al.*	(CDF Collab.)
AALTONEN	11AG	PRL 107 191801	T. Aaltonen *et al.*	(CDF Collab.)
Also		PRL 107 239903 (errat.)	T. Aaltonen *et al.*	(CDF Collab.)
AALTONEN	11AI	PRL 107 201802	T. Aaltonen *et al.*	(CDF Collab.)
AALTONEN	11L	PRL 106 161801	T. Aaltonen *et al.*	(CDF Collab.)
AALTONEN	11N	PRL 106 181802	T. Aaltonen *et al.*	(CDF Collab.)
ABAZOV	11U	PR D84 052007	V.M. Abazov *et al.*	(D0 Collab.)
AUSHEV	11	PR D83 051102	T. Aushev *et al.*	(BELLE Collab.)
BAHINIPATI	11	PR D84 021101	S. Bahinipati *et al.*	(BELLE Collab.)
BHARDWAJ	11	PRL 107 091803	V. Bhardwaj *et al.*	(BELLE Collab.)
CHATRCHYAN	11T	PRL 107 191802	S. Chatrchyan *et al.*	(CMS Collab.)
CHOI	11	PR D84 052004	S.-K. Choi *et al.*	(BELLE Collab.)
DEL-AMO-SA...	11A	PR D83 032006	P. del Amo Sanchez *et al.*	(BABAR Collab.)
DEL-AMO-SA...	11B	PR D83 032004	P. del Amo Sanchez *et al.*	(BABAR Collab.)
DEL-AMO-SA...	11C	PR D83 032007	P. del Amo Sanchez *et al.*	(BABAR Collab.)
DEL-AMO-SA...	11F	PR D83 052011	P. del Amo Sanchez *et al.*	(BABAR Collab.)
DEL-AMO-SA...	11K	PR D83 091101	P. del Amo Sanchez *et al.*	(BABAR Collab.)
HA	11	PR D83 071101	H. Ha *et al.*	(BELLE Collab.)
LEES	11	PR D83 112010	J.P. Lees *et al.*	(BABAR Collab.)
LEES	11A	PR D84 012001	J.P. Lees *et al.*	(BABAR Collab.)
LEES	11F	PR D84 071102	J.P. Lees *et al.*	(BABAR Collab.)
LEES	11M	PR D84 112007	J.P. Lees *et al.*	(BABAR Collab.)
Also		PR D87 039901 (errat.)	J.P. Lees *et al.*	(BABAR Collab.)
SAHOO	11A	PR D84 071101	H. Sahoo *et al.*	(BELLE Collab.)
AUBERT	10	PRL 104 011802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	10D	PR D81 052009	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	10H	PR D82 031102	B. Aubert *et al.*	(BABAR Collab.)
AUSHEV	10	PR D81 031103	T. Aushev *et al.*	(BELLE Collab.)
CHIANG	10	PR D81 071101	C.-C. Chiang *et al.*	(BELLE Collab.)
DAS	10	PR D82 051103	A. Das *et al.*	(BELLE Collab.)
DEL-AMO-SA...	10A	PR D82 011502	P. del Amo Sanchez *et al.*	(BABAR Collab.)
DEL-AMO-SA...	10B	PR D82 011101	P. del Amo Sanchez *et al.*	(BABAR Collab.)
DEL-AMO-SA...	10E	PR D82 031101	P. del Amo Sanchez *et al.*	(BABAR Collab.)
DEL-AMO-SA...	10Q	PR D82 112002	P. del Amo Sanchez *et al.*	(BABAR Collab.)
DUNGEL	10	PR D82 112007	W. Dungel *et al.*	(BELLE Collab.)
FUJIKAWA	10A	PR D81 011101	M. Fujikawa *et al.*	(BELLE Collab.)
HYUN	10	PRL 105 091801	H.J. Hyun *et al.*	(BELLE Collab.)
JOSHI	10	PR D81 031101	N.J. Joshi *et al.*	(BELLE Collab.)
NAKAHAMA	10	PR D82 073011	Y. Nakahama *et al.*	(BELLE Collab.)
WEDD	10	PR D81 111104	R. Wedd *et al.*	(BELLE Collab.)
AALTONEN	09B	PR D79 011104	T. Aaltonen *et al.*	(CDF Collab.)
AALTONEN	09C	PRL 103 031801	T. Aaltonen *et al.*	(CDF Collab.)
AALTONEN	09E	PR D79 032001	T. Aaltonen *et al.*	(CDF Collab.)
AALTONEN	09P	PRL 102 201801	T. Aaltonen *et al.*	(CDF Collab.)
ABAZOV	09E	PRL 102 032001	V.M. Abazov *et al.*	(D0 Collab.)
AUBERT	09	PR D79 011102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09A	PR D79 012002	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09AA	PR D79 112001	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09AC	PR D79 112009	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09AD	PR D80 011101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09AE	PR D80 031102	B. Aubert *et al.*	(BABAR Collab.)

AUBERT	09AF	PR D80 051101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09AG	PR D80 051105	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09AL	PR D80 092007	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09AO	PRL 103 211802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09AU	PR D80 112001	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09AV	PR D80 112002	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09B	PRL 102 132001	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09C	PR D79 032002	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09G	PRL 102 141802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09H	PR D79 052005	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09I	PR D79 052003	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09K	PR D79 072009	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09S	PR D79 092002	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09T	PRL 102 091803	B. Aubert *et al.*	(BABAR Collab.)
Also		EPAPS Document No. E-PRLTAO-102-060910	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	09Y	PRL 103 051803	B. Aubert *et al.*	(BABAR Collab.)
CHANG	09	PR D79 052006	Y.-W. Chang *et al.*	(BELLE Collab.)
DALSENO	09	PR D79 072004	J. Dalseno *et al.*	(BELLE Collab.)
KYEONG	09	PR D80 051103	S.-H. Kyeong *et al.*	(BELLE Collab.)
MIZUK	09	PR D80 031104	R. Mizuk *et al.*	(BELLE Collab.)
VERVINK	09	PR D80 111104	K. Vervink *et al.*	(BELLE Collab.)
WEI	09A	PRL 103 171801	J.-T. Wei *et al.*	(BELLE Collab.)
Also		EPAPS Supplement EPAPS_appendix.pdf	J.-T. Wei *et al.*	(BELLE Collab.)
ADACHI	08	PR D77 091101	I. Adachi *et al.*	(BELLE Collab.)
AUBERT	08AB	PR D78 012006	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08AC	PR D77 071102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08AD	PR D77 091104	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08AF	PR D78 011103	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08AG	PR D78 011104	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08AH	PR D78 011107	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08AJ	PR D78 032005	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08AP	PR D78 051103	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08AQ	PR D78 052005	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08AU	PRL 101 021801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08AV	PRL 101 081801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08B	PR D77 011102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08BA	PR D78 071102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08BB	PR D78 071104	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08BC	PR D78 072007	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08BD	PR D78 091101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08BG	PR D78 092008	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08BH	PR D78 112001	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08BK	PRL 101 201801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08BL	PRL 101 261802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08BN	PR D78 112003	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08C	PR D77 011104	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08E	PR D77 012003	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08F	PRL 100 051803	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08G	PRL 100 171803	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08H	PR D77 031101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08I	PRL 100 081801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08N	PRL 100 021801	B. Aubert *et al.*	(BABAR Collab.)
Also		PR D79 092002	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08P	PR D77 032007	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08Q	PRL 100 151802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08R	PR D77 032002	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08W	PRL 101 082001	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	08Y	PR D77 111101	B. Aubert *et al.*	(BABAR Collab.)
CHEN	08C	PRL 100 251801	J.-H. Chen *et al.*	(BELLE Collab.)
CHIANG	08	PR D78 111102	C.C. Chiang *et al.*	(BELLE Collab.)
CHOI	08	PRL 100 142001	S.-K. Choi *et al.*	(BELLE Collab.)
GOLDENZWE...	08	PRL 101 231801	P. Goldenzweig *et al.*	(BELLE Collab.)
KIM	08	PL B669 287	H.O. Kim *et al.*	(BELLE Collab.)
KUMAR	08	PR D78 091104	R. Kumar *et al.*	(BELLE Collab.)
KUSAKA	08	PR D77 072001	A. Kusaka *et al.*	(BELLE Collab.)
LEE	08A	PR D77 071101	S.E. Lee *et al.*	(BELLE Collab.)
LI	08F	PRL 101 251601	J. Li *et al.*	(BELLE Collab.)
LIN	08	NAT 452 332	S.-W. Lin *et al.*	(BELLE Collab.)
LIU	08I	PR D78 011106	Y. Liu *et al.*	(BELLE Collab.)
LIVENTSEV	08	PR D77 091503	D. Liventsev *et al.*	(BELLE Collab.)
MIZUK	08	PR D78 072004	R. Mizuk *et al.*	(BELLE Collab.)

NAKAHAMA	08	PRL 100 121601	Y. Nakahama *et al.*	(BELLE Collab.)
PDG	08	PL B667 1	C. Amsler *et al.*	(PDG Collab.)
SAHOO	08	PR D77 091103	H. Sahoo *et al.*	(BELLE Collab.)
TANIGUCHI	08	PRL 101 111801	N. Taniguchi *et al.*	(BELLE Collab.)
UCHIDA	08	PR D77 051101	Y. Uchida *et al.*	(BELLE Collab.)
USHIRODA	08	PRL 100 021602	Y. Ushiroda *et al.*	(BELLE Collab.)
WEI	08A	PR D78 011101	J.-T. Wei *et al.*	(BELLE Collab.)
ABAZOV	07S	PRL 99 142001	V.M. Abazov *et al.*	(D0 Collab.)
ABULENCIA	07A	PRL 98 122001	A. Abulencia *et al.*	(FNAL CDF Collab.)
ADAM	07	PRL 99 041802	N.E. Adam *et al.*	(CLEO Collab.)
Also		PR D76 012007	D.M. Asner *et al.*	(CLEO Collab.)
AUBERT	07A	PRL 98 031801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AA	PR D76 012004	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AC	PR D76 031101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AD	PR D76 031102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AE	PR D76 031103	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AF	PRL 99 021603	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AG	PRL 99 051801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AI	PRL 99 071801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AJ	PRL 99 081801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AN	PR D76 051101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AO	PR D76 051103	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AQ	PR D76 071101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AS	PR D76 071104	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AT	PR D76 091101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AV	PR D76 092004	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AX	PRL 99 161802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07AY	PRL 99 171803	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07B	PR D75 012008	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07BC	PR D76 091102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07BF	PR D76 052007	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07BH	PRL 99 231802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07BI	PRL 99 241803	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07BO	PR D76 111102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07D	PRL 98 051801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07E	PRL 98 051802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07F	PRL 98 051803	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07G	PRL 98 111801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07H	PR D75 031101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07J	PRL 98 091801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07K	PRL 98 081801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07L	PRL 98 151802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07N	PR D75 072002	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07O	PRL 98 181803	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07Q	PR D75 051102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07R	PRL 98 211804	B. Aubert *et al.*	(BABAR Collab.)
Also		PRL 100 189903E	B. Aubert *et al.*	(BABAR Collab.)
Also		PRL 100 199905E	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07Y	PR D75 111102	B. Aubert *et al.*	(BABAR Collab.)
CHANG	07A	PRL 98 131803	M.-C. Chang *et al.*	(BELLE Collab.)
CHANG	07B	PR D75 071104	P. Chang *et al.*	(BELLE Collab.)
CHAO	07	PR D76 091103	Y. Chao *et al.*	(BELLE Collab.)
CHEN	07	PRL 98 031802	K.-F. Chen *et al.*	(BELLE Collab.)
CHEN	07D	PRL 99 221802	K.-F. Chen *et al.*	(BELLE Collab.)
DALSENO	07	PR D76 072004	J. Dalseno *et al.*	(BELLE Collab.)
FRATINA	07	PRL 98 221802	S. Fratina *et al.*	(BELLE Collab.)
GARMASH	07	PR D75 012006	A. Garmash *et al.*	(BELLE Collab.)
HOKUUE	07	PL B648 139	T. Hokuue *et al.*	(BELLE Collab.)
ISHINO	07	PRL 98 211801	H. Ishino *et al.*	(BELLE Collab.)
KUSAKA	07	PRL 98 221602	A. Kusaka *et al.*	(BELLE Collab.)
Also		PR D77 072001	A. Kusaka *et al.*	(BELLE Collab.)
KUZMIN	07	PR D76 012006	A. Kuzmin *et al.*	(BELLE Collab.)
LIN	07	PRL 98 181804	S.-W. Lin *et al.*	(BELLE Collab.)
LIN	07A	PRL 99 121601	S.-W. Lin *et al.*	(BELLE Collab.)
MATYJA	07	PRL 99 191807	A. Matyja *et al.*	(BELLE Collab.)
MEDVEDEVA	07	PR D76 051102	T. Medvedeva *et al.*	(BELLE Collab.)
PARK	07	PR D75 011101	K.S. Park *et al.*	(BELLE Collab.)
SCHUEMANN	07	PR D75 092002	J. Schuemann *et al.*	(BELLE Collab.)
SOMOV	07	PR D76 011104	A. Somov *et al.*	(BELLE Collab.)
TSAI	07	PR D75 111101	Y.-T. Tsai *et al.*	(BELLE Collab.)
URQUIJO	07	PR D75 032001	P. Urquijo *et al.*	(BELLE Collab.)

WANG	07B	PR D75 092005	C.H. Wang *et al.*	(BELLE Collab.)
WANG	07C	PR D76 052004	M.-Z. Wang *et al.*	(BELLE Collab.)
XIE	07	PR D75 017101	Q.L. Xie *et al.*	(BELLE Collab.)
ZUPANC	07	PR D75 091102	A. Zupanc *et al.*	(BELLE Collab.)
ABAZOV	06S	PR D74 092001	V.M. Abazov *et al.*	(D0 Collab.)
ABAZOV	06W	PR D74 112002	V.M. Abazov *et al.*	(D0 Collab.)
ABULENCIA,A	06D	PRL 97 211802	A. Abulencia *et al.*	(CDF Collab.)
ACOSTA	06	PRL 96 202001	D. Acosta *et al.*	(CDF Collab.)
AUBERT	06	PR D73 011101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06A	PRL 96 011803	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06E	PRL 96 052002	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06G	PR D73 012004	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06I	PR D73 031101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06L	PR D74 012001	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06N	PR D74 031103	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06S	PRL 96 241802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06T	PRL 96 251802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06V	PRL 97 051802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06W	PR D73 071102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06X	PR D73 071103	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06Y	PR D73 111101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06A	PR D73 112004	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06B	PR D74 011101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06C	PR D74 011102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06E	PR D74 011106	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06G	PRL 97 201801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06H	PRL 97 201802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06J	PR D73 092001	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06K	PRL 97 211801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06L	PR D74 031101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06M	PR D74 031102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06O	PR D74 031104	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06P	PR D74 031105	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06Q	PR D74 091101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06R	PR D74 032005	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06S	PR D74 051101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06T	PR D74 051102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06V	PR D74 051106	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06Y	PR D74 091105	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	06Z	PR D74 092004	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	06C	PRL 97 171805	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	06H	PRL 97 261803	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	06J	PR D74 111102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	06N	PR D74 072008	B. Aubert *et al.*	(BABAR Collab.)
BLYTH	06	PR D74 092002	S. Blyth *et al.*	(BELLE Collab.)
CHISTOV	06A	PR D74 111105	R. Chistov *et al.*	(BELLE Collab.)
DRAGIC	06	PR D73 111105	J. Dragic *et al.*	(BELLE Collab.)
GABYSHEV	06	PRL 97 202003	N. Gabyshev *et al.*	(BELLE Collab.)
GOKHROO	06	PRL 97 162002	G. Gokhroo *et al.*	(BELLE Collab.)
JEN	06	PR D74 111101	C.-M. Jen *et al.*	(BELLE Collab.)
KROKOVNY	06	PRL 97 081801	P. Krokovny *et al.*	(BELLE Collab.)
MOHAPATRA	06	PRL 96 221601	D. Mohapatra *et al.*	(BELLE Collab.)
NAKANO	06	PR D73 112002	E. Nakano *et al.*	(BELLE Collab.)
RONGA	06	PR D73 092003	F.J. Ronga *et al.*	(BELLE Collab.)
SCHUEMANN	06	PRL 97 061802	J. Schuemann *et al.*	(BELLE Collab.)
SOMOV	06	PRL 96 171801	A. Somov *et al.*	(BELLE Collab.)
SONI	06	PL B634 155	N. Soni *et al.*	(BELLE Collab.)
USHIRODA	06	PR D74 111104	Y. Ushiroda *et al.*	(BELLE Collab.)
VILLA	06	PR D73 051107	S. Villa *et al.*	(BELLE Collab.)
ABAZOV	05B	PRL 94 042001	V.M. Abazov *et al.*	(D0 Collab.)
ABAZOV	05C	PRL 94 102001	V.M. Abazov *et al.*	(D0 Collab.)
ABAZOV	05D	PRL 94 182001	V.M. Abazov *et al.*	(D0 Collab.)
ABAZOV	05W	PRL 95 171801	V.M. Abazov *et al.*	(D0 Collab.)
ABE	05A	PRL 94 221805	K. Abe *et al.*	(BELLE Collab.)
ABE	05B	PR D71 072003	K. Abe *et al.*	(BELLE Collab.)
Also		PR D71 079903 (errat.)	K. Abe *et al.*	(BELLE Collab.)
ABE	05D	PRL 95 101801	K. Abe *et al.*	(BELLE Collab.)
ABE	05G	PRL 95 231802	K. Abe *et al.*	(BELLE Collab.)
ACOSTA	05	PRL 94 101803	D. Acosta *et al.*	(CDF Collab.)
AUBERT	05	PRL 94 011801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05B	PR D71 031501	B. Aubert *et al.*	(BABAR Collab.)

AUBERT	05E	PR D71 051502	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05F	PRL 94 161803	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05I	PRL 94 131801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05J	PRL 94 141801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05K	PRL 94 171801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05L	PRL 94 181802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05M	PRL 94 191802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05O	PR D71 031103	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05P	PR D71 032005	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05T	PR D71 091102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05U	PR D71 091103	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05V	PR D71 091104	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05W	PRL 94 221803	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05Y	PR D71 111102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	05Z	PR D71 112003	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	05	PRL 95 011801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	05C	PRL 95 041805	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	05K	PRL 95 131803	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	05O	PR D72 051102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	05P	PR D72 051103	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	05Q	PR D72 051106	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	05Z	PRL 95 131802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	05	PRL 95 151803	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	05A	PRL 95 151804	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	05B	PRL 95 171802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	05C	PR D72 091103	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	05E	PRL 95 221801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	05F	PR D72 111101	B. Aubert *et al.*	(BABAR Collab.)
CHANG	05	PR D71 072007	M.-C. Chang *et al.*	(BELLE Collab.)
CHANG	05A	PR D71 091106	P. Chang *et al.*	(BELLE Collab.)
CHAO	05	PRL 94 181803	Y. Chao *et al.*	(BELLE Collab.)
CHAO	05A	PR D71 031502	Y. Chao *et al.*	(BELLE Collab.)
CHEN	05A	PRL 94 221804	K.-F. Chen *et al.*	(BELLE Collab.)
CHEN	05B	PR D72 012004	K.-F. Chen *et al.*	(BELLE Collab.)
DRUTSKOY	05	PRL 94 061802	A. Drutskoy *et al.*	(BELLE Collab.)
GERSHON	05	PL B624 11	T. Gershon *et al.*	(BELLE Collab.)
ITOH	05	PRL 95 091601	R. Itoh *et al.*	(BELLE Collab.)
LIVENTSEV	05	PR D72 051109	D. Liventsev *et al.*	(BELLE Collab.)
MAJUMDER	05	PRL 95 041803	G. Majumder *et al.*	(BELLE Collab.)
MIYAKE	05	PL B618 34	H. Miyake *et al.*	(BELLE Collab.)
MOHAPATRA	05	PR D72 011101	D. Mohapatra *et al.*	(BELLE Collab.)
NISHIDA	05	PL B610 23	S. Nishida *et al.*	(BELLE Collab.)
OKABE	05	PL B614 27	T. Okabe *et al.*	(BELLE Collab.)
PARK	05	PRL 94 021801	H.K. Park *et al.*	(FNAL HyperCP Collab.)
SCHUMANN	05	PR D72 011103	J. Schumann *et al.*	(BELLE Collab.)
SUMISAWA	05	PRL 95 061801	K. Sumisawa *et al.*	(BELLE Collab.)
USHIRODA	05	PRL 94 231601	Y. Ushiroda *et al.*	(BELLE Collab.)
WANG	05	PRL 94 121801	C.C. Wang *et al.*	(BELLE Collab.)
WANG	05A	PL B617 141	M.-Z. Wang *et al.*	(BELLE Collab.)
XIE	05	PR D72 051105	Q.L. Xie *et al.*	(BELLE Collab.)
YANG	05	PRL 94 111802	H. Yang *et al.*	(BELLE Collab.)
ZHANG	05B	PR D71 091107	L.M. Zhang *et al.*	(BELLE Collab.)
ABDALLAH	04D	EPJ C33 213	J. Abdallah *et al.*	(DELPHI Collab.)
ABDALLAH	04E	EPJ C33 307	J. Abdallah *et al.*	(DELPHI Collab.)
ABE	04E	PRL 93 021601	K. Abe *et al.*	(BELLE Collab.)
AUBERT	04A	PR D69 011102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	04B	PR D69 032004	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	04C	PRL 92 111801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	04G	PR D69 031102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	04H	PRL 92 061801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	04M	PRL 92 201802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	04R	PR D69 052001	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	04U	PR D69 091503	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	04V	PRL 92 251801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	04W	PRL 92 251802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	04Y	PRL 93 041801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	04Z	PRL 93 051802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04B	PR D70 011101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04C	PR D70 012007	B. Aubert *et al.*	(BABAR Collab.)
Also		PRL 92 181801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04D	PR D70 032006	B. Aubert *et al.*	(BABAR Collab.)

AUBERT,B	04G	PRL 93 071801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04H	PRL 93 081801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04J	PRL 93 091802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04K	PRL 93 131801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04M	PRL 93 131805	B. Aubert	(BABAR Collab.)
AUBERT,B	04O	PR D70 091103	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04R	PRL 93 231801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04S	PRL 93 181801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04T	PR D70 091104	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04U	PR D70 091105	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04V	PRL 93 181805	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04W	PRL 93 231804	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04X	PRL 93 181806	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	04Z	PRL 93 201801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	04	PR D70 111102	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	04A	PR D70 112006	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	04B	PR D70 091106	B. Aubert *et al.*	(BABAR Collab.)
AUSHEV	04	PRL 93 201802	T. Aushev *et al.*	(BELLE Collab.)
BORNHEIM	04	PRL 93 241802	A. Bornheim *et al.*	(CLEO Collab.)
CHANG	04	PL B599 148	P. Chang *et al.*	(BELLE Collab.)
CHAO	04	PR D69 111102	Y. Chao *et al.*	(BELLE Collab.)
CHAO	04B	PRL 93 191802	Y. Chao *et al.*	(BELLE Collab.)
DRAGIC	04	PRL 93 131802	J. Dragic	(BELLE Collab.)
DRUTSKOY	04	PRL 92 051801	A. Drutskoy *et al.*	(BELLE Collab.)
GARMASH	04	PR D69 012001	A. Garmash *et al.*	(BELLE Collab.)
KATAOKA	04	PRL 93 261801	S.U. Kataoka *et al.*	(BELLE Collab.)
MAJUMDER	04	PR D70 111103	G. Majumder *et al.*	(BELLE Collab.)
NAKAO	04	PR D69 112001	M. Nakao *et al.*	(BELLE Collab.)
SARANGI	04	PRL 93 031802	T.R. Sarangi *et al.*	(BELLE Collab.)
WANG	04	PRL 92 131801	M.Z. Wang *et al.*	(BELLE Collab.)
WANG	04A	PR D70 012001	C.H. Wang *et al.*	(BELLE Collab.)
ABDALLAH	03B	EPJ C28 155	J. Abdallah *et al.*	(DELPHI Collab.)
ABE	03B	PR D67 032003	K. Abe *et al.*	(BELLE Collab.)
ABE	03C	PR D67 031102	K. Abe *et al.*	(BELLE Collab.)
ABE	03G	PR D68 012001	K. Abe *et al.*	(BELLE Collab.)
ABE	03H	PRL 91 261602	K. Abe *et al.*	(BELLE Collab.)
ADAM	03	PR D67 032001	N.E. Adam *et al.*	(CLEO Collab.)
ATHAR	03	PR D68 072003	S.B. Athar *et al.*	(CLEO Collab.)
AUBERT	03B	PRL 90 091801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03C	PR D67 072002	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03D	PRL 90 181803	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03E	PRL 90 181801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03H	PR D67 091101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03I	PR D67 092003	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03J	PRL 90 221801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03K	PRL 90 231801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03L	PRL 91 021801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03N	PRL 91 061802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03O	PRL 91 071801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03Q	PRL 91 131801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03S	PRL 91 241801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03T	PRL 91 201802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03U	PRL 91 221802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03V	PRL 91 171802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03W	PRL 91 161801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	03X	PR D68 092001	B. Aubert *et al.*	(BABAR Collab.)
BORNHEIM	03	PR D68 052002	A. Bornheim *et al.*	(CLEO Collab.)
CHANG	03	PR D68 111101	M.-C. Chang *et al.*	(BELLE Collab.)
CHEN	03B	PRL 91 201801	K.-F. Chen *et al.*	(BELLE Collab.)
CSORNA	03	PR D67 112002	S.E. Csorna *et al.*	(CLEO Collab.)
EISENSTEIN	03	PR D68 017101	B.I. Eisenstein *et al.*	(CLEO Collab.)
FANG	03	PRL 90 071801	F. Fang *et al.*	(BELLE Collab.)
GABYSHEV	03	PRL 90 121802	N. Gabyshev *et al.*	(BELLE Collab.)
HASTINGS	03	PR D67 052004	N.C. Hastings *et al.*	(BELLE Collab.)
ISHIKAWA	03	PRL 91 261601	A. Ishikawa *et al.*	(BELLE Collab.)
KROKOVNY	03	PRL 90 141802	P. Krokovny *et al.*	(BELLE Collab.)
KROKOVNY	03B	PRL 91 262002	P. Krokovny *et al.*	(BELLE Collab.)
LEE	03	PRL 91 261801	S.H. Lee *et al.*	(BELLE Collab.)
SATPATHY	03	PL B553 159	A. Satpathy *et al.*	(BELLE Collab.)
WANG	03	PRL 90 201802	M.-Z. Wang *et al.*	(BELLE Collab.)
ZHENG	03	PR D67 092004	Y. Zheng *et al.*	(BELLE Collab.)

ABE	02	PRL 88 021801	K. Abe *et al.*	(BELLE Collab.)
ABE	02E	PL B526 258	K. Abe *et al.*	(BELLE Collab.)
ABE	02F	PL B526 247	K. Abe *et al.*	(BELLE Collab.)
ABE	02H	PRL 88 171801	K. Abe *et al.*	(BELLE Collab.)
ABE	02J	PRL 88 052002	K. Abe *et al.*	(BELLE Collab.)
ABE	02K	PRL 88 181803	K. Abe *et al.*	(BELLE Collab.)
ABE	02M	PRL 89 071801	K. Abe *et al.*	(BELLE Collab.)
ABE	02N	PL B538 11	K. Abe *et al.*	(BELLE Collab.)
ABE	02O	PR D65 091103	K. Abe *et al.*	(BELLE Collab.)
ABE	02Q	PRL 89 122001	K. Abe *et al.*	(BELLE Collab.)
ABE	02U	PR D66 032007	K. Abe *et al.*	(BELLE Collab.)
ABE	02W	PRL 89 151802	K. Abe *et al.*	(BELLE Collab.)
ABE	02Z	PR D66 071102	K. Abe *et al.*	(BELLE Collab.)
ACOSTA	02C	PR D65 092009	D. Acosta *et al.*	(CDF Collab.)
ACOSTA	02G	PR D66 112002	D. Acosta *et al.*	(CDF Collab.)
AFFOLDER	02B	PRL 88 071801	T. Affolder *et al.*	(CDF Collab.)
AHMED	02B	PR D66 031101	S. Ahmed *et al.*	(CLEO Collab.)
ASNER	02	PR D65 031103	D.M. Asner *et al.*	(CLEO Collab.)
AUBERT	02	PR D65 032001	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	02C	PRL 88 101805	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	02D	PR D65 051502	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	02E	PR D65 051101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	02H	PRL 89 011802	B. Aubert *et al.*	(BABAR Collab.)
Also		PRL 89 169903 (errat.)	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	02I	PRL 88 221802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	02J	PRL 88 221803	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	02K	PRL 88 231801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	02L	PRL 88 241801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	02M	PRL 89 061801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	02N	PR D66 032003	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	02P	PRL 89 201802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	02Q	PRL 89 281802	B. Aubert *et al.*	(BABAR Collab.)
BRIERE	02	PRL 89 081803	R. Briere *et al.*	(CLEO Collab.)
CASEY	02	PR D66 092002	B.C.K. Casey *et al.*	(BELLE Collab.)
CHEN	02B	PL B546 196	K.-F. Chen *et al.*	(BELLE Collab.)
COAN	02	PRL 88 062001	T.E. Coan *et al.*	(CLEO Collab.)
Also		PRL 88 069902 (errat.)	T.E. Coan *et al.*	(CLEO Collab.)
DRUTSKOY	02	PL B542 171	A. Drutskoy *et al.*	(BELLE Collab.)
DYTMAN	02	PR D66 091101	S.A. Dytman *et al.*	(CLEO Collab.)
ECKHART	02	PRL 89 251801	E. Eckhart *et al.*	(CLEO Collab.)
EDWARDS	02	PR D65 012002	K.W. Edwards *et al.*	(CLEO Collab.)
GABYSHEV	02	PR D66 091102	N. Gabyshev *et al.*	(BELLE Collab.)
GODANG	02	PRL 88 021802	R. Godang *et al.*	(CLEO Collab.)
GORDON	02	PL B542 183	A. Gordon *et al.*	(BELLE Collab.)
HARA	02	PRL 89 251803	K. Hara *et al.*	(BELLE Collab.)
KROKOVNY	02	PRL 89 231804	P. Korkovny *et al.*	(BELLE Collab.)
MAHAPATRA	02	PRL 88 101803	R. Mahapatra *et al.*	(CLEO Collab.)
NISHIDA	02	PRL 89 231801	S. Nishida *et al.*	(BELLE Collab.)
TOMURA	02	PL B542 207	T. Tomura *et al.*	(BELLE Collab.)
ABASHIAN	01	PRL 86 2509	A. Abashian *et al.*	(BELLE Collab.)
ABE	01D	PRL 86 3228	K. Abe *et al.*	(BELLE Collab.)
ABE	01G	PRL 87 091802	K. Abe *et al.*	(BELLE Collab.)
ABE	01H	PRL 87 101801	K. Abe *et al.*	(BELLE Collab.)
ABE	01I	PRL 87 111801	K. Abe *et al.*	(BELLE Collab.)
ABE	01K	PR D64 071101	K. Abe *et al.*	(BELLE Collab.)
ABE	01L	PRL 87 161601	K. Abe *et al.*	(BELLE Collab.)
ABE	01M	PL B517 309	K. Abe *et al.*	(BELLE Collab.)
ABREU	01H	PL B510 55	P. Abreu *et al.*	(DELPHI Collab.)
ALEXANDER	01B	PR D64 092001	J.P. Alexander *et al.*	(CLEO Collab.)
AMMAR	01B	PRL 87 271801	R. Ammar *et al.*	(CLEO Collab.)
ANDERSON	01	PRL 86 2732	S. Anderson *et al.*	(CLEO Collab.)
ANDERSON	01B	PRL 87 181803	S. Anderson *et al.*	(CLEO Collab.)
AUBERT	01	PRL 86 2515	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	01B	PRL 87 091801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	01D	PRL 87 151801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	01E	PRL 87 151802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	01F	PRL 87 201803	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	01G	PRL 87 221802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	01H	PRL 87 241801	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	01I	PRL 87 241803	B. Aubert *et al.*	(BABAR Collab.)
BARATE	01D	EPJ C20 431	R. Barate *et al.*	(ALEPH Collab.)

BRIERE	01	PRL 86 3718	R.A. Biere *et al.*	(CLEO Collab.)
EDWARDS	01	PRL 86 30	K.W. Edwards *et al.*	(CLEO Collab.)
JAFFE	01	PRL 86 5000	D. Jaffe *et al.*	(CLEO Collab.)
RICHICHI	01	PR D63 031103	S.J. Richichi *et al.*	(CLEO Collab.)
ABBIENDI	00Q	PL B482 15	G. Abbiendi *et al.*	(OPAL Collab.)
ABBIENDI,G	00B	PL B493 266	G. Abbiendi *et al.*	(OPAL Collab.)
ABE	00C	PR D62 071101	K. Abe *et al.*	(SLD Collab.)
AFFOLDER	00C	PR D61 072005	T. Affolder *et al.*	(CDF Collab.)
AFFOLDER	00N	PRL 85 4668	T. Affolder *et al.*	(CDF Collab.)
AHMED	00B	PR D62 112003	S. Ahmed *et al.*	(CLEO Collab.)
ANASTASSOV	00	PRL 84 1393	A. Anastassov *et al.*	(CLEO Collab.)
ARTUSO	00	PRL 84 4292	M. Artuso *et al.*	(CLEO Collab.)
AVERY	00	PR D62 051101	P. Avery *et al.*	(CLEO Collab.)
BARATE	00Q	PL B492 259	R. Barate *et al.*	(ALEPH Collab.)
BARATE	00R	PL B492 275	R. Barate *et al.*	(ALEPH Collab.)
BEHRENS	00	PR D61 052001	B.H. Behrens *et al.*	(CLEO Collab.)
BEHRENS	00B	PL B490 36	B.H. Behrens *et al.*	(CLEO Collab.)
BERGFELD	00B	PR D62 091102	T. Bergfeld *et al.*	(CLEO Collab.)
CHEN	00	PRL 85 525	S. Chen *et al.*	(CLEO Collab.)
COAN	00	PRL 84 5283	T.E. Coan *et al.*	(CLEO Collab.)
CRONIN-HEN...	00	PRL 85 515	D. Cronin-Hennessy *et al.*	(CLEO Collab.)
CSORNA	00	PR D61 111101	S.E. Csorna *et al.*	(CLEO Collab.)
JESSOP	00	PRL 85 2881	C.P. Jessop *et al.*	(CLEO Collab.)
LIPELES	00	PR D62 032005	E. Lipeles *et al.*	(CLEO Collab.)
RICHICHI	00	PRL 85 520	S.J. Richichi *et al.*	(CLEO Collab.)
ABBIENDI	99J	EPJ C12 609	G. Abbiendi *et al.*	(OPAL Collab.)
ABE	99K	PR D60 051101	F. Abe *et al.*	(CDF Collab.)
ABE	99Q	PR D60 072003	F. Abe *et al.*	(CDF Collab.)
AFFOLDER	99B	PRL 83 3378	T. Affolder *et al.*	(CDF Collab.)
AFFOLDER	99C	PR D60 112004	T. Affolder *et al.*	(CDF Collab.)
ARTUSO	99	PRL 82 3020	M. Artuso *et al.*	(CLEO Collab.)
BARTELT	99	PRL 82 3746	J. Bartelt *et al.*	(CLEO Collab.)
COAN	99	PR D59 111101	T.E. Coan *et al.*	(CLEO Collab.)
ABE	98B	PR D57 5382	F. Abe *et al.*	(CDF Collab.)
ABE	98C	PRL 80 2057	F. Abe *et al.*	(CDF Collab.)
Also		PR D59 032001	F. Abe *et al.*	(CDF Collab.)
ABE	98O	PR D58 072001	F. Abe *et al.*	(CDF Collab.)
ABE	98Q	PR D58 092002	F. Abe *et al.*	(CDF Collab.)
ABE	98U	PRL 81 5513	F. Abe *et al.*	(CDF Collab.)
ABE	98V	PRL 81 5742	F. Abe *et al.*	(CDF Collab.)
ACCIARRI	98D	EPJ C5 195	M. Acciarri *et al.*	(L3 Collab.)
ACCIARRI	98S	PL B438 417	M. Acciarri *et al.*	(L3 Collab.)
ACKERSTAFF	98Z	EPJ C5 379	K. Ackerstaff *et al.*	(OPAL Collab.)
BARATE	98Q	EPJ C4 387	R. Barate *et al.*	(ALEPH Collab.)
BEHRENS	98	PRL 80 3710	B.H. Behrens *et al.*	(CLEO Collab.)
BERGFELD	98	PRL 81 272	T. Bergfeld *et al.*	(CLEO Collab.)
BRANDENB...	98	PRL 80 2762	G. Brandenbrug *et al.*	(CLEO Collab.)
GODANG	98	PRL 80 3456	R. Godang *et al.*	(CLEO Collab.)
NEMATI	98	PR D57 5363	B. Nemati *et al.*	(CLEO Collab.)
ABE	97J	PRL 79 590	K. Abe *et al.*	(SLD Collab.)
ABREU	97F	ZPHY C74 19	P. Abreu *et al.*	(DELPHI Collab.)
Also		ZPHY C75 579 (erratum)	P. Abreu *et al.*	(DELPHI Collab.)
ABREU	97N	ZPHY C76 579	P. Abreu *et al.*	(DELPHI Collab.)
ACCIARRI	97B	PL B391 474	M. Acciarri *et al.*	(L3 Collab.)
ACCIARRI	97C	PL B391 481	M. Acciarri *et al.*	(L3 Collab.)
ACKERSTAFF	97G	PL B395 128	K. Ackerstaff *et al.*	(OPAL Collab.)
ACKERSTAFF	97U	ZPHY C76 401	K. Ackerstaff *et al.*	(OPAL Collab.)
ACKERSTAFF	97V	ZPHY C76 417	K. Ackerstaff *et al.*	(OPAL Collab.)
ARTUSO	97	PL B399 321	M. Artuso *et al.*	(CLEO Collab.)
ASNER	97	PRL 79 799	D. Asner *et al.*	(CLEO Collab.)
ATHANAS	97	PRL 79 2208	M. Athanas *et al.*	(CLEO Collab.)
BUSKULIC	97	PL B395 373	D. Buskulic *et al.*	(ALEPH Collab.)
BUSKULIC	97D	ZPHY C75 397	D. Buskulic *et al.*	(ALEPH Collab.)
FU	97	PRL 79 3125	X. Fu *et al.*	(CLEO Collab.)
JESSOP	97	PRL 79 4533	C.P. Jessop *et al.*	(CLEO Collab.)
ABE	96B	PR D53 3496	F. Abe *et al.*	(CDF Collab.)
ABE	96C	PRL 76 4462	F. Abe *et al.*	(CDF Collab.)
ABE	96H	PRL 76 2015	F. Abe *et al.*	(CDF Collab.)
ABE	96Q	PR D54 6596	F. Abe *et al.*	(CDF Collab.)
ABREU	96P	ZPHY C71 539	P. Abreu *et al.*	(DELPHI Collab.)
ABREU	96Q	ZPHY C72 17	P. Abreu *et al.*	(DELPHI Collab.)

ACCIARRI 96E PL B383 487 M. Acciarri *et al.* (L3 Collab.)
ADAM 96D ZPHY C72 207 W. Adam *et al.* (DELPHI Collab.)
ALBRECHT 96D PL B374 256 H. Albrecht *et al.* (ARGUS Collab.)
ALEXANDER 96T PRL 77 5000 J.P. Alexander *et al.* (CLEO Collab.)
ALEXANDER 96V ZPHY C72 377 G. Alexander *et al.* (OPAL Collab.)
ASNER 96 PR D53 1039 D.M. Asner *et al.* (CLEO Collab.)
BARISH 96B PRL 76 1570 B.C. Barish *et al.* (CLEO Collab.)
BISHAI 96 PL B369 186 M. Bishai *et al.* (CLEO Collab.)
BUSKULIC 96J ZPHY C71 31 D. Buskulic *et al.* (ALEPH Collab.)
BUSKULIC 96V PL B384 471 D. Buskulic *et al.* (ALEPH Collab.)
DUBOSCQ 96 PRL 76 3898 J.E. Duboscq *et al.* (CLEO Collab.)
GIBAUT 96 PR D53 4734 D. Gibaut *et al.* (CLEO Collab.)
PDG 96 PR D54 1 R. M. Barnett *et al.* (PDG Collab.)
ABE 95Z PRL 75 3068 F. Abe *et al.* (CDF Collab.)
ABREU 95N PL B357 255 P. Abreu *et al.* (DELPHI Collab.)
ABREU 95Q ZPHY C68 13 P. Abreu *et al.* (DELPHI Collab.)
ACCIARRI 95H PL B363 127 M. Acciarri *et al.* (L3 Collab.)
ACCIARRI 95I PL B363 137 M. Acciarri *et al.* (L3 Collab.)
ADAM 95 ZPHY C68 363 W. Adam *et al.* (DELPHI Collab.)
AKERS 95J ZPHY C66 555 R. Akers *et al.* (OPAL Collab.)
AKERS 95T ZPHY C67 379 R. Akers *et al.* (OPAL Collab.)
ALEXANDER 95 PL B341 435 J. Alexander *et al.* (CLEO Collab.)
Also PL B347 469 (erratum) J. Alexander *et al.* (CLEO Collab.)
BARISH 95 PR D51 1014 B.C. Barish *et al.* (CLEO Collab.)
BUSKULIC 95N PL B359 236 D. Buskulic *et al.* (ALEPH Collab.)
ABE 94D PRL 72 3456 F. Abe *et al.* (CDF Collab.)
ABREU 94M PL B338 409 P. Abreu *et al.* (DELPHI Collab.)
AKERS 94C PL B327 411 R. Akers *et al.* (OPAL Collab.)
AKERS 94H PL B336 585 R. Akers *et al.* (OPAL Collab.)
AKERS 94J PL B337 196 R. Akers *et al.* (OPAL Collab.)
AKERS 94L PL B337 393 R. Akers *et al.* (OPAL Collab.)
ALAM 94 PR D50 43 M.S. Alam *et al.* (CLEO Collab.)
ALBRECHT 94 PL B324 249 H. Albrecht *et al.* (ARGUS Collab.)
ALBRECHT 94G PL B340 217 H. Albrecht *et al.* (ARGUS Collab.)
AMMAR 94 PR D49 5701 R. Ammar *et al.* (CLEO Collab.)
ATHANAS 94 PRL 73 3503 M. Athanas *et al.* (CLEO Collab.)
Also PRL 74 3090 (erratum) M. Athanas *et al.* (CLEO Collab.)
BUSKULIC 94B PL B322 441 D. Buskulic *et al.* (ALEPH Collab.)
PDG 94 PR D50 1173 L. Montanet *et al.* (CERN, LBL, BOST+)
PROCARIO 94 PRL 73 1472 M. Procario *et al.* (CLEO Collab.)
STONE 94 HEPSY 93-11 S. Stone
Published in B Decays, 2nd Edition, World Scientific, Singapore
ABREU 93D ZPHY C57 181 P. Abreu *et al.* (DELPHI Collab.)
ABREU 93G PL B312 253 P. Abreu *et al.* (DELPHI Collab.)
ACTON 93C PL B307 247 P.D. Acton *et al.* (OPAL Collab.)
ALBRECHT 93 ZPHY C57 533 H. Albrecht *et al.* (ARGUS Collab.)
ALBRECHT 93E ZPHY C60 11 H. Albrecht *et al.* (ARGUS Collab.)
ALEXANDER 93B PL B319 365 J. Alexander *et al.* (CLEO Collab.)
AMMAR 93 PRL 71 674 R. Ammar *et al.* (CLEO Collab.)
BARTELT 93 PRL 71 1680 J.E. Bartelt *et al.* (CLEO Collab.)
BATTLE 93 PRL 71 3922 M. Battle *et al.* (CLEO Collab.)
BEAN 93B PRL 70 2681 A. Bean *et al.* (CLEO Collab.)
BUSKULIC 93D PL B307 194 D. Buskulic *et al.* (ALEPH Collab.)
Also PL B325 537 (erratum) D. Buskulic *et al.* (ALEPH Collab.)
BUSKULIC 93K PL B313 498 D. Buskulic *et al.* (ALEPH Collab.)
SANGHERA 93 PR D47 791 S. Sanghera *et al.* (CLEO Collab.)
ALBRECHT 92C PL B275 195 H. Albrecht *et al.* (ARGUS Collab.)
ALBRECHT 92G ZPHY C54 1 H. Albrecht *et al.* (ARGUS Collab.)
ALBRECHT 92L ZPHY C55 357 H. Albrecht *et al.* (ARGUS Collab.)
BORTOLETTO 92 PR D45 21 D. Bortoletto *et al.* (CLEO Collab.)
HENDERSON 92 PR D45 2212 S. Henderson *et al.* (CLEO Collab.)
KRAMER 92 PL B279 181 G. Kramer, W.F. Palmer (HAMB, OSU)
ALBAJAR 91E PL B273 540 C. Albajar *et al.* (UA1 Collab.)
ALBRECHT 91B PL B254 288 H. Albrecht *et al.* (ARGUS Collab.)
ALBRECHT 91C PL B255 297 H. Albrecht *et al.* (ARGUS Collab.)
ALBRECHT 91E PL B262 148 H. Albrecht *et al.* (ARGUS Collab.)
BERKELMAN 91 ARNPS 41 1 K. Berkelman, S. Stone (CORN, SYRA)
"Decays of B Mesons"
FULTON 91 PR D43 651 R. Fulton *et al.* (CLEO Collab.)
ALBRECHT 90B PL B241 278 H. Albrecht *et al.* (ARGUS Collab.)
ALBRECHT 90J ZPHY C48 543 H. Albrecht *et al.* (ARGUS Collab.)

ANTREASYAN	90B	ZPHY C48 553	D. Antreasyan *et al.*	(Crystal Ball Collab.)
BORTOLETTO	90	PRL 64 2117	D. Bortoletto *et al.*	(CLEO Collab.)
ELSEN	90	ZPHY C46 349	E. Elsen *et al.*	(JADE Collab.)
ROSNER	90	PR D42 3732	J.L. Rosner	
WAGNER	90	PRL 64 1095	S.R. Wagner *et al.*	(Mark II Collab.)
ALBRECHT	89C	PL B219 121	H. Albrecht *et al.*	(ARGUS Collab.)
ALBRECHT	89G	PL B229 304	H. Albrecht *et al.*	(ARGUS Collab.)
ALBRECHT	89J	PL B229 175	H. Albrecht *et al.*	(ARGUS Collab.)
ALBRECHT	89L	PL B232 554	H. Albrecht *et al.*	(ARGUS Collab.)
ARTUSO	89	PRL 62 2233	M. Artuso *et al.*	(CLEO Collab.)
AVERILL	89	PR D39 123	D.A. Averill *et al.*	(HRS Collab.)
AVERY	89B	PL B223 470	P. Avery *et al.*	(CLEO Collab.)
BEBEK	89	PRL 62 8	C. Bebek *et al.*	(CLEO Collab.)
BORTOLETTO	89	PRL 62 2436	D. Bortoletto *et al.*	(CLEO Collab.)
BORTOLETTO	89B	PRL 63 1667	D. Bortoletto *et al.*	(CLEO Collab.)
ALBRECHT	88F	PL B209 119	H. Albrecht *et al.*	(ARGUS Collab.)
ALBRECHT	88K	PL B215 424	H. Albrecht *et al.*	(ARGUS Collab.)
ALBRECHT	87C	PL B185 218	H. Albrecht *et al.*	(ARGUS Collab.)
ALBRECHT	87D	PL B199 451	H. Albrecht *et al.*	(ARGUS Collab.)
ALBRECHT	87I	PL B192 245	H. Albrecht *et al.*	(ARGUS Collab.)
ALBRECHT	87J	PL B197 452	H. Albrecht *et al.*	(ARGUS Collab.)
AVERY	87	PL B183 429	P. Avery *et al.*	(CLEO Collab.)
BEAN	87B	PRL 58 183	A. Bean *et al.*	(CLEO Collab.)
BEBEK	87	PR D36 1289	C. Bebek *et al.*	(CLEO Collab.)
ALAM	86	PR D34 3279	M.S. Alam *et al.*	(CLEO Collab.)
ALBRECHT	86F	PL B182 95	H. Albrecht *et al.*	(ARGUS Collab.)
PDG	86	PL 170B 1	M. Aguilar-Benitez *et al.*	(CERN, CIT+)
CHEN	85	PR D31 2386	A. Chen *et al.*	(CLEO Collab.)
HAAS	85	PRL 55 1248	J. Haas *et al.*	(CLEO Collab.)
AVERY	84	PRL 53 1309	P. Avery *et al.*	(CLEO Collab.)
GILES	84	PR D30 2279	R. Giles *et al.*	(CLEO Collab.)
BEHRENDS	83	PRL 50 881	S. Behrends *et al.*	(CLEO Collab.)