B^0 – THIS IS PART 1 OF 3

To reduce the size of this section's PostScript file, we have divided it into three PostScript files. We present the following index:

PART 1

PART 2

PART 3

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 Notes "Experimental Highlights of B Meson Production and Decay" and "Semileptonic Decays of B Mesons" at the beginning of the $B^{\pm}$ Particle Listings and the Note on "B^0-$\overline{B}^0$ Mixing and CP Violation in B Decay" near the end of the B^0 Particle Listings.

B^0 MASS

The fit uses m_{B^+}, $(m_{B^0} - m_{B^+})$, $m_{B^0_s}$, and $(m_{B^0_s} - (m_{B^+} + m_{B^0})/2)$ to determine m_{B^+}, m_{B^0}, $m_{B^0_s}$, and the mass differences. m_{B^0} data are excluded from the fit because they are not independent.

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
5279.2±1.8 OUR FIT					
5279.8±1.6 OUR AVERAGE					
5281.3±2.2 ±1.4	51	[1] ABE	96B	CDF	$p\overline{p}$ at 1.8 TeV
5279.2±0.54±2.0	340	[2] ALAM	94	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
5278.0±0.4 ±2.0		[2] BORTOLETTO	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
5279.6±0.7 ±2.0	40	[2,3] ALBRECHT	90J	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
5280.6±0.8 ±2.0		[2] BEBEK	87	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
5278.2±1.0 ±3.0	40	ALBRECHT	87C	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
5279.5±1.6 ±3.0	7	[4] ALBRECHT	87D	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[1] Excluded from fit because it is not independent of ABE 96B B^0_s mass and B^0_s-B mass difference.

[2] These experiments all report a common systematic error 2.0 MeV. We have artificially increased the systematic error to allow the experiments to be treated as independent measurements in our average. See "Treatment of Errors" section of the Introductory Text. These experiments actually measure the difference between half of E_{cm} and the B mass.

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

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

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

The mass difference measurements are not independent of the $B^{\pm}$ and B^0 mass measurement by the same experimenters. The fit uses m_{B^+}, $(m_{B^0} - m_{B^+})$, $m_{B^0_s}$, and $(m_{B^0_s} - (m_{B^+} + m_{B^0})/2)$ to determine m_{B^+}, m_{B^0}, $m_{B^0_s}$, and the mass differences.

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
0.35±0.29 OUR FIT Error includes scale factor of 1.1.				
0.34±0.32 OUR AVERAGE Error includes scale factor of 1.2.				
0.41±0.25±0.19	ALAM	94	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
−0.4 ±0.6 ±0.5	BORTOLETTO	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
−0.9 ±1.2 ±0.5	ALBRECHT	90J	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
2.0 ±1.1 ±0.3	[5] BEBEK	87	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[5] 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 of the data listed below performed by the LEP B Lifetimes Working Group as described in our review "Production and Decay of b-flavored Hadrons" in the $B^{\pm}$ Section of the Listings. The averaging procedure takes into account correlations between the measurements and asymmetric lifetime errors.

VALUE (10^{-12} s)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.56 ±0.04 OUR EVALUATION					
1.58 ±0.09 ±0.02		[6] ABE	98B	CDF	$p\overline{p}$ at 1.8 TeV
1.64 ±0.08 ±0.08		[7] ABE	97J	SLD	$e^+e^- \rightarrow Z$
1.532±0.041±0.040		[8] ABREU	97F	DLPH	$e^+e^- \rightarrow Z$
1.54 ±0.08 ±0.06		[9] ABE	96C	CDF	$p\overline{p}$ at 1.8 TeV
1.61 ±0.07 ±0.04		[9] BUSKULIC	96J	ALEP	$e^+e^- \rightarrow Z$
1.25 $^{+0.15}_{-0.13}$ ±0.05	121	[6] BUSKULIC	96J	ALEP	$e^+e^- \rightarrow Z$
1.49 $^{+0.17}_{-0.15}$ $^{+0.08}_{-0.06}$		[10] BUSKULIC	96J	ALEP	$e^+e^- \rightarrow Z$
1.61 $^{+0.14}_{-0.13}$ ±0.08		[9,11] ABREU	95Q	DLPH	$e^+e^- \rightarrow Z$
1.63 ±0.14 ±0.13		[12] ADAM	95	DLPH	$e^+e^- \rightarrow Z$
1.53 ±0.12 ±0.08		[9,13] AKERS	95T	OPAL	$e^+e^- \rightarrow Z$

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

1.55 ± 0.06 ± 0.03		[14] BUSKULIC	96J	ALEP	$e^+e^- \to Z$
1.62 ± 0.12		[15] ADAM	95	DLPH	$e^+e^- \to Z$
1.57 ± 0.18 ± 0.08	121	[6] ABE	94D	CDF	Repl. by ABE 98B
1.17 $^{+0.29}_{-0.23}$ ± 0.16	96	[9] ABREU	93D	DLPH	Sup. by ABREU 95Q
1.55 ± 0.25 ± 0.18	76	[12] ABREU	93G	DLPH	Sup. by ADAM 95
1.51 $^{+0.24}_{-0.23}$ $^{+0.12}_{-0.14}$	78	[9] ACTON	93C	OPAL	Sup. by AKERS 95T
1.52 $^{+0.20}_{-0.18}$ $^{+0.07}_{-0.13}$	77	[9] BUSKULIC	93D	ALEP	Sup. by BUSKULIC 96J
1.20 $^{+0.52}_{-0.36}$ $^{+0.16}_{-0.14}$	15	[16] WAGNER	90	MRK2	E^{ee}_{cm}= 29 GeV
0.82 $^{+0.57}_{-0.37}$ ± 0.27		[17] AVERILL	89	HRS	E^{ee}_{cm}= 29 GeV

[6] Measured mean life using fully reconstructed decays.
[7] Data analyzed using charge of secondary vertex.
[8] Data analyzed using inclusive $D/D^* \ell X$.
[9] Data analyzed using $D/D^* \ell$X event vertices.
[10] Measured mean life using partially reconstructed $D^{*-}\pi^+$X vertices.
[11] ABREU 95Q assumes B($B^0 \to D^{**-}\ell^+\nu_\ell$) = 3.2 ± 1.7%.
[12] Data analyzed using vertex-charge technique to tag B charge.
[13] AKERS 95T assumes B($B^0 \to D_s{}^{(*)} D^{0\,(*)}$) = 5.0 ± 0.9% to find B^+/B^0 yield.
[14] Combined result of $D/D^* \ell$x analysis, fully reconstructed B analysis, and partially reconstruced $D^{*-}\pi^+$X analysis.
[15] Combined ABREU 95Q and ADAM 95 result.
[16] 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 $\pi^-\overline{D}^0$.
[17] AVERILL 89 is an estimate of the B^0 mean lifetime assuming that $B^0 \to D^{*+}$+ X always.

MEAN LIFE RATIO τ_{B^+}/τ_{B^0}

τ_{B^+}/τ_{B^0} (average of direct and inferred)

VALUE	DOCUMENT ID
1.02±0.04 OUR AVERAGE	Includes data from the 2 datablocks that follow this one.

τ_{B^+}/τ_{B^0} (direct measurements)

"OUR EVALUATION" is an average of the data listed below performed by the LEP B Lifetimes Working Group as described in our review "Production and Decay of b-flavored Hadrons" in the $B^\pm$ Section of the Listings. The averaging procedure takes into account correlations between the measurements and asymmetric lifetime errors.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
The data in this block is included in the average printed for a previous datablock.					
1.04±0.04 OUR EVALUATION					
1.06±0.07±0.02		[18] ABE	98B	CDF	$p\overline{p}$ at 1.8 TeV
1.01±0.07±0.06		[19] ABE	97J	SLD	$e^+e^- \to Z$
1.01±0.11±0.02		[20] ABE	96C	CDF	$p\overline{p}$ at 1.8 TeV
0.98±0.08±0.03		[20] BUSKULIC	96J	ALEP	$e^+e^- \to Z$

$1.27^{+0.23}_{-0.19}{}^{+0.03}_{-0.02}$		[18] BUSKULIC	96J	ALEP	$e^+e^- \to Z$
$1.00^{+0.17}_{-0.15}\pm0.10$		[20,21] ABREU	95Q	DLPH	$e^+e^- \to Z$
$1.06^{+0.13}_{-0.10}\pm0.10$		[22] ADAM	95	DLPH	$e^+e^- \to Z$
$0.99\pm0.14^{+0.05}_{-0.04}$		[20,23] AKERS	95T	OPAL	$e^+e^- \to Z$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.03\pm0.08\pm0.02$		[24] BUSKULIC	96J	ALEP	$e^+e^- \to Z$
$1.02\pm0.16\pm0.05$	269	[18] ABE	94D	CDF	Repl. by ABE 98B
$1.11^{+0.51}_{-0.39}\pm0.11$	188	[20] ABREU	93D	DLPH	Sup. by ABREU 95Q
$1.01^{+0.29}_{-0.22}\pm0.12$	253	[22] ABREU	93G	DLPH	Sup. by ADAM 95
$1.0\ ^{+0.33}_{-0.25}\pm0.08$	130	ACTON	93C	OPAL	Sup. by AKERS 95T
$0.96^{+0.19}_{-0.15}{}^{+0.18}_{-0.12}$	154	[20] BUSKULIC	93D	ALEP	Sup. by BUSKULIC 96J

[18] Measured using fully reconstructed decays.
[19] Data analyzed using charge of secondary vertex.
[20] Data analyzed using $D/D^*\ell X$ vertices.
[21] ABREU 95Q assumes $B(B^0 \to D^{**-}\ell^+\nu_\ell) = 3.2 \pm 1.7\%$.
[22] Data analyzed using vertex-charge technique to tag B charge.
[23] AKERS 95T assumes $B(B^0 \to D_s^{(*)} D^{0(*)}) = 5.0 \pm 0.9\%$ to find B^+/B^0 yield.
[24] 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.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
The data in this block is included in the average printed for a previous datablock.						
$\mathbf{0.95^{+0.117}_{-0.080}\pm0.091}$			[25] ARTUSO	97	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$1.15\pm0.17\ \pm0.06$			[26] JESSOP	97	CLE2	$e^+e^- \to \Upsilon(4S)$
$0.93\pm0.18\ \pm0.12$			[27] ATHANAS	94	CLE2	Sup. by ARTUSO 97
$0.91\pm0.27\ \pm0.21$			[28] ALBRECHT	92C	ARG	$e^+e^- \to \Upsilon(4S)$
$1.0\ \pm0.4$		29	[28,29] ALBRECHT	92G	ARG	$e^+e^- \to \Upsilon(4S)$
$0.89\pm0.19\ \pm0.13$			[28] FULTON	91	CLEO	$e^+e^- \to \Upsilon(4S)$
$1.00\pm0.23\ \pm0.14$			[28] ALBRECHT	89L	ARG	$e^+e^- \to \Upsilon(4S)$
0.49 to 2.3	90		[30] BEAN	87B	CLEO	$e^+e^- \to \Upsilon(4S)$

[25] ARTUSO 97 uses partial reconstruction of $B \to D^*\ell\nu_\ell$ and independent of B^0 and B^+ production fraction.
[26] Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.
[27] ATHANAS 94 uses events tagged by fully reconstructed B^- decays and partially or fully reconstructed B^0 decays.

[28] Assumes equal production of B^0 and B^+.
[29] ALBRECHT 92G data analyzed using $B \to D_s \overline{D}$, $D_s \overline{D}^*$, $D_s^* \overline{D}$, $D_s^* \overline{D}^*$ events.
[30] BEAN 87B assume the fraction of $B^0 \overline{B}^0$ events at the $\Upsilon(4S)$ is 0.41.

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.

	Mode		Fraction (Γ_i/Γ)	Scale factor/ Confidence level
Γ_1	$\ell^+ \nu_\ell$ anything	[a]	(10.5 ± 0.8) %	
Γ_2	$D^- \ell^+ \nu_\ell$	[a]	(2.00 ± 0.25) %	
Γ_3	$D^*(2010)^- \ell^+ \nu_\ell$	[a]	(4.60 ± 0.27) %	
Γ_4	$\rho^- \ell^+ \nu_\ell$	[a]	$(2.5 {}^{+0.8}_{-1.0}) \times 10^{-4}$	
Γ_5	$\pi^- \ell^+ \nu_\ell$		$(1.8 \pm 0.6) \times 10^{-4}$	
	Inclusive modes			
Γ_6	$\pi^- \mu^+ \nu_\mu$			
Γ_7	K^+ anything		(78 ± 80) %	
	D, D^*, or D_s modes			
Γ_8	$D^- \pi^+$		$(3.0 \pm 0.4) \times 10^{-3}$	
Γ_9	$D^- \rho^+$		$(7.9 \pm 1.4) \times 10^{-3}$	
Γ_{10}	$\overline{D}^0 \pi^+ \pi^-$		$< 1.6 \times 10^{-3}$	CL=90%
Γ_{11}	$D^*(2010)^- \pi^+$		$(2.76 \pm 0.21) \times 10^{-3}$	
Γ_{12}	$D^- \pi^+ \pi^+ \pi^-$		$(8.0 \pm 2.5) \times 10^{-3}$	
Γ_{13}	$(D^- \pi^+ \pi^+ \pi^-)$ nonresonant		$(3.9 \pm 1.9) \times 10^{-3}$	
Γ_{14}	$D^- \pi^+ \rho^0$		$(1.1 \pm 1.0) \times 10^{-3}$	
Γ_{15}	$D^- a_1(1260)^+$		$(6.0 \pm 3.3) \times 10^{-3}$	
Γ_{16}	$D^*(2010)^- \pi^+ \pi^0$		(1.5 ± 0.5) %	
Γ_{17}	$D^*(2010)^- \rho^+$		$(6.7 \pm 3.3) \times 10^{-3}$	
Γ_{18}	$D^*(2010)^- \pi^+ \pi^+ \pi^-$		$(7.6 \pm 1.7) \times 10^{-3}$	S=1.3
Γ_{19}	$(D^*(2010)^- \pi^+ \pi^+ \pi^-)$ non-resonant		$(0.0 \pm 2.5) \times 10^{-3}$	
Γ_{20}	$D^*(2010)^- \pi^+ \rho^0$		$(5.7 \pm 3.1) \times 10^{-3}$	

Γ_{21}	$D^*(2010)^- a_1(1260)^+$	(1.30± 0.27) %		
Γ_{22}	$D^*(2010)^- \pi^+ \pi^+ \pi^- \pi^0$	(3.4 ± 1.8) %		
Γ_{23}	$\overline{D}{}_2^*(2460)^- \pi^+$	< 2.2	$\times 10^{-3}$	CL=90%
Γ_{24}	$\overline{D}{}_2^*(2460)^- \rho^+$	< 4.9	$\times 10^{-3}$	CL=90%
Γ_{25}	$D^- D_s^+$	(8.0 ± 3.0)	$\times 10^{-3}$	
Γ_{26}	$D^*(2010)^- D_s^+$	(9.6 ± 3.4)	$\times 10^{-3}$	
Γ_{27}	$D^- D_s^{*+}$	(1.0 ± 0.5) %		
Γ_{28}	$D^*(2010)^- D_s^{*+}$	(2.0 ± 0.7) %		
Γ_{29}	$D_s^+ \pi^-$	< 2.8	$\times 10^{-4}$	CL=90%
Γ_{30}	$D_s^{*+} \pi^-$	< 5	$\times 10^{-4}$	CL=90%
Γ_{31}	$D_s^+ \rho^-$	< 7	$\times 10^{-4}$	CL=90%
Γ_{32}	$D_s^{*+} \rho^-$	< 8	$\times 10^{-4}$	CL=90%
Γ_{33}	$D_s^+ a_1(1260)^-$	< 2.6	$\times 10^{-3}$	CL=90%
Γ_{34}	$D_s^{*+} a_1(1260)^-$	< 2.2	$\times 10^{-3}$	CL=90%
Γ_{35}	$D_s^- K^+$	< 2.4	$\times 10^{-4}$	CL=90%
Γ_{36}	$D_s^{*-} K^+$	< 1.7	$\times 10^{-4}$	CL=90%
Γ_{37}	$D_s^- K^*(892)^+$	< 9.9	$\times 10^{-4}$	CL=90%
Γ_{38}	$D_s^{*-} K^*(892)^+$	< 1.1	$\times 10^{-3}$	CL=90%
Γ_{39}	$D_s^- \pi^+ K^0$	< 5	$\times 10^{-3}$	CL=90%
Γ_{40}	$D_s^{*-} \pi^+ K^0$	< 3.1	$\times 10^{-3}$	CL=90%
Γ_{41}	$D_s^- \pi^+ K^*(892)^0$	< 4	$\times 10^{-3}$	CL=90%
Γ_{42}	$D_s^{*-} \pi^+ K^*(892)^0$	< 2.0	$\times 10^{-3}$	CL=90%
Γ_{43}	$\overline{D}{}^0 \pi^0$	< 1.2	$\times 10^{-4}$	CL=90%
Γ_{44}	$\overline{D}{}^0 \rho^0$	< 3.9	$\times 10^{-4}$	CL=90%
Γ_{45}	$\overline{D}{}^0 \eta$	< 1.3	$\times 10^{-4}$	CL=90%
Γ_{46}	$\overline{D}{}^0 \eta'$	< 9.4	$\times 10^{-4}$	CL=90%
Γ_{47}	$\overline{D}{}^0 \omega$	< 5.1	$\times 10^{-4}$	CL=90%
Γ_{48}	$\overline{D}{}^*(2007)^0 \pi^0$	< 4.4	$\times 10^{-4}$	CL=90%
Γ_{49}	$\overline{D}{}^*(2007)^0 \rho^0$	< 5.6	$\times 10^{-4}$	CL=90%
Γ_{50}	$\overline{D}{}^*(2007)^0 \eta$	< 2.6	$\times 10^{-4}$	CL=90%
Γ_{51}	$\overline{D}{}^*(2007)^0 \eta'$	< 1.4	$\times 10^{-3}$	CL=90%
Γ_{52}	$\overline{D}{}^*(2007)^0 \omega$	< 7.4	$\times 10^{-4}$	CL=90%
Γ_{53}	$D^*(2010)^+ D^*(2010)^-$	< 2.2	$\times 10^{-3}$	CL=90%
Γ_{54}	$D^*(2010)^+ D^-$	< 1.8	$\times 10^{-3}$	CL=90%
Γ_{55}	$D^+ D^*(2010)^-$	< 1.2	$\times 10^{-3}$	CL=90%

Charmonium modes

Γ_{56}	$J/\psi(1S) K^0$	(8.9 ± 1.2)	$\times 10^{-4}$	
Γ_{57}	$J/\psi(1S) K^+ \pi^-$	(1.1 ± 0.6)	$\times 10^{-3}$	
Γ_{58}	$J/\psi(1S) K^*(892)^0$	(1.35± 0.18)	$\times 10^{-3}$	
Γ_{59}	$J/\psi(1S) \pi^0$	< 5.8	$\times 10^{-5}$	CL=90%
Γ_{60}	$J/\psi(1S) \eta$	< 1.2	$\times 10^{-3}$	CL=90%

Γ_{61}	$J/\psi(1S)\rho^0$		$< 2.5 \times 10^{-4}$	CL=90%
Γ_{62}	$J/\psi(1S)\omega$		$< 2.7 \times 10^{-4}$	CL=90%
Γ_{63}	$\psi(2S)K^0$		$< 8 \times 10^{-4}$	CL=90%
Γ_{64}	$\psi(2S)K^+\pi^-$		$< 1 \times 10^{-3}$	CL=90%
Γ_{65}	$\quad\psi(2S)K^*(892)^0$		$(1.4 \pm 0.9) \times 10^{-3}$	
Γ_{66}	$\chi_{c1}(1P)K^0$		$< 2.7 \times 10^{-3}$	CL=90%
Γ_{67}	$\chi_{c1}(1P)K^*(892)^0$		$< 2.1 \times 10^{-3}$	CL=90%

***K* or *K** modes**

Γ_{68}	$K^+\pi^-$		$(1.5 {}^{+0.5}_{-0.4}) \times 10^{-5}$	
Γ_{69}	$K^0\pi^0$		$< 4.1 \times 10^{-5}$	CL=90%
Γ_{70}	$\eta' K^0$		$(4.7 {}^{+2.8}_{-2.2}) \times 10^{-5}$	
Γ_{71}	$\eta' K^*(892)^0$		$< 3.9 \times 10^{-5}$	CL=90%
Γ_{72}	$\eta K^*(892)^0$		$< 3.0 \times 10^{-5}$	CL=90%
Γ_{73}	ηK^0		$< 3.3 \times 10^{-5}$	CL=90%
Γ_{74}	K^+K^-		$< 4.3 \times 10^{-6}$	CL=90%
Γ_{75}	$K^0\overline{K}^0$		$< 1.7 \times 10^{-5}$	CL=90%
Γ_{76}	$K^+\rho^-$		$< 3.5 \times 10^{-5}$	CL=90%
Γ_{77}	$K^0\pi^+\pi^-$			
Γ_{78}	$\quad K^0\rho^0$		$< 3.9 \times 10^{-5}$	CL=90%
Γ_{79}	$\quad K^0 f_0(980)$		$< 3.6 \times 10^{-4}$	CL=90%
Γ_{80}	$\quad K^*(892)^+\pi^-$		$< 7.2 \times 10^{-5}$	CL=90%
Γ_{81}	$\quad K^*(892)^0\pi^0$		$< 2.8 \times 10^{-5}$	CL=90%
Γ_{82}	$\quad K_2^*(1430)^+\pi^-$		$< 2.6 \times 10^{-3}$	CL=90%
Γ_{83}	$K^0K^+K^-$		$< 1.3 \times 10^{-3}$	CL=90%
Γ_{84}	$\quad K^0\phi$		$< 8.8 \times 10^{-5}$	CL=90%
Γ_{85}	$\quad K^-\pi^+\pi^+\pi^-$	[b]	$< 2.3 \times 10^{-4}$	CL=90%
Γ_{86}	$\quad K^*(892)^0\pi^+\pi^-$		$< 1.4 \times 10^{-3}$	CL=90%
Γ_{87}	$\quad\quad K^*(892)^0\rho^0$		$< 4.6 \times 10^{-4}$	CL=90%
Γ_{88}	$\quad\quad K^*(892)^0 f_0(980)$		$< 1.7 \times 10^{-4}$	CL=90%
Γ_{89}	$\quad\quad K_1(1400)^+\pi^-$		$< 1.1 \times 10^{-3}$	CL=90%
Γ_{90}	$\quad\quad K^- a_1(1260)^+$	[b]	$< 2.3 \times 10^{-4}$	CL=90%
Γ_{91}	$K^*(892)^0K^+K^-$		$< 6.1 \times 10^{-4}$	CL=90%
Γ_{92}	$\quad K^*(892)^0\phi$		$< 4.3 \times 10^{-5}$	CL=90%
Γ_{93}	$K_1(1400)^0\rho^0$		$< 3.0 \times 10^{-3}$	CL=90%
Γ_{94}	$K_1(1400)^0\phi$		$< 5.0 \times 10^{-3}$	CL=90%
Γ_{95}	$K_2^*(1430)^0\rho^0$		$< 1.1 \times 10^{-3}$	CL=90%
Γ_{96}	$K_2^*(1430)^0\phi$		$< 1.4 \times 10^{-3}$	CL=90%
Γ_{97}	$K^*(892)^0\gamma$		$(4.0 \pm 1.9) \times 10^{-5}$	
Γ_{98}	$K_1(1270)^0\gamma$		$< 7.0 \times 10^{-3}$	CL=90%

Γ_{99}	$K_1(1400)^0\gamma$		<4.3	$\times 10^{-3}$	CL=90%
Γ_{100}	$K_2^*(1430)^0\gamma$		<4.0	$\times 10^{-4}$	CL=90%
Γ_{101}	$K^*(1680)^0\gamma$		<2.0	$\times 10^{-3}$	CL=90%
Γ_{102}	$K_3^*(1780)^0\gamma$		<1.0	%	CL=90%
Γ_{103}	$K_4^*(2045)^0\gamma$		<4.3	$\times 10^{-3}$	CL=90%
Γ_{104}	$\phi\phi$		<3.9	$\times 10^{-5}$	CL=90%

Light unflavored meson modes

Γ_{105}	$\pi^+\pi^-$		<1.5	$\times 10^{-5}$	CL=90%
Γ_{106}	$\pi^0\pi^0$		<9.3	$\times 10^{-6}$	CL=90%
Γ_{107}	$\eta\pi^0$		<8	$\times 10^{-6}$	CL=90%
Γ_{108}	$\eta\eta$		<1.8	$\times 10^{-5}$	CL=90%
Γ_{109}	$\eta'\pi^0$		<1.1	$\times 10^{-5}$	CL=90%
Γ_{110}	$\eta'\eta'$		<4.7	$\times 10^{-5}$	CL=90%
Γ_{111}	$\eta'\eta$		<2.7	$\times 10^{-5}$	CL=90%
Γ_{112}	$\eta'\rho^0$		<2.3	$\times 10^{-5}$	CL=90%
Γ_{113}	$\eta\rho^0$		<1.3	$\times 10^{-5}$	CL=90%
Γ_{114}	$\pi^+\pi^-\pi^0$		<7.2	$\times 10^{-4}$	CL=90%
Γ_{115}	$\rho^0\pi^0$		<2.4	$\times 10^{-5}$	CL=90%
Γ_{116}	$\rho^\mp\pi^\pm$	[c]	<8.8	$\times 10^{-5}$	CL=90%
Γ_{117}	$\pi^+\pi^-\pi^+\pi^-$		<2.3	$\times 10^{-4}$	CL=90%
Γ_{118}	$\rho^0\rho^0$		<2.8	$\times 10^{-4}$	CL=90%
Γ_{119}	$a_1(1260)^\mp\pi^\pm$	[c]	<4.9	$\times 10^{-4}$	CL=90%
Γ_{120}	$a_2(1320)^\mp\pi^\pm$	[c]	<3.0	$\times 10^{-4}$	CL=90%
Γ_{121}	$\pi^+\pi^-\pi^0\pi^0$		<3.1	$\times 10^{-3}$	CL=90%
Γ_{122}	$\rho^+\rho^-$		<2.2	$\times 10^{-3}$	CL=90%
Γ_{123}	$a_1(1260)^0\pi^0$		<1.1	$\times 10^{-3}$	CL=90%
Γ_{124}	$\omega\pi^0$		<4.6	$\times 10^{-4}$	CL=90%
Γ_{125}	$\pi^+\pi^+\pi^-\pi^-\pi^0$		<9.0	$\times 10^{-3}$	CL=90%
Γ_{126}	$a_1(1260)^+\rho^-$		<3.4	$\times 10^{-3}$	CL=90%
Γ_{127}	$a_1(1260)^0\rho^0$		<2.4	$\times 10^{-3}$	CL=90%
Γ_{128}	$\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$		<3.0	$\times 10^{-3}$	CL=90%
Γ_{129}	$a_1(1260)^+a_1(1260)^-$		<2.8	$\times 10^{-3}$	CL=90%
Γ_{130}	$\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$		<1.1	%	CL=90%

Baryon modes

Γ_{131}	$p\overline{p}$		<1.8	$\times 10^{-5}$	CL=90%
Γ_{132}	$p\overline{p}\pi^+\pi^-$		<2.5	$\times 10^{-4}$	CL=90%
Γ_{133}	$p\overline{\Lambda}\pi^-$		<1.8	$\times 10^{-4}$	CL=90%
Γ_{134}	$\Delta^0\overline{\Delta}^0$		<1.5	$\times 10^{-3}$	CL=90%
Γ_{135}	$\Delta^{++}\Delta^{--}$		<1.1	$\times 10^{-4}$	CL=90%

Γ_{136}	$\overline{\Sigma}_c^{--}\Delta^{++}$		< 1.0	$\times 10^{-3}$	CL=90%
Γ_{137}	$\Lambda_c^- p\pi^+\pi^-$		(1.3 ± 0.6)	$\times 10^{-3}$	
Γ_{138}	$\Lambda_c^- p$		< 2.1	$\times 10^{-4}$	CL=90%
Γ_{139}	$\Lambda_c^- p\pi^0$		< 5.9	$\times 10^{-4}$	CL=90%
Γ_{140}	$\Lambda_c^- p\pi^+\pi^-\pi^0$		< 5.07	$\times 10^{-3}$	CL=90%
Γ_{141}	$\Lambda_c^- p\pi^+\pi^-\pi^+\pi^-$		< 2.74	$\times 10^{-3}$	CL=90%

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

Γ_{142}	$\gamma\gamma$	*B1*		< 3.9	$\times 10^{-5}$	CL=90%
Γ_{143}	e^+e^-	*B1*		< 5.9	$\times 10^{-6}$	CL=90%
Γ_{144}	$\mu^+\mu^-$	*B1*		< 6.8	$\times 10^{-7}$	CL=90%
Γ_{145}	$K^0 e^+e^-$	*B1*		< 3.0	$\times 10^{-4}$	CL=90%
Γ_{146}	$K^0\mu^+\mu^-$	*B1*		< 3.6	$\times 10^{-4}$	CL=90%
Γ_{147}	$K^*(892)^0 e^+e^-$	*B1*		< 2.9	$\times 10^{-4}$	CL=90%
Γ_{148}	$K^*(892)^0\mu^+\mu^-$	*B1*		< 2.3	$\times 10^{-5}$	CL=90%
Γ_{149}	$K^*(892)^0\nu\overline{\nu}$	*B1*		< 1.0	$\times 10^{-3}$	CL=90%
Γ_{150}	$e^\pm\mu^\mp$	*LF*	[c]	< 5.9	$\times 10^{-6}$	CL=90%
Γ_{151}	$e^\pm\tau^\mp$	*LF*	[c]	< 5.3	$\times 10^{-4}$	CL=90%
Γ_{152}	$\mu^\pm\tau^\mp$	*LF*	[c]	< 8.3	$\times 10^{-4}$	CL=90%

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

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

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

B^0 BRANCHING RATIOS

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

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

VALUE		DOCUMENT ID		TECN	COMMENT
0.105 ±0.008 OUR AVERAGE					
0.1078±0.0060±0.0069	[31]	ARTUSO	97	CLE2	$e^+e^- \to \Upsilon(4S)$
0.093 ±0.011 ±0.015		ALBRECHT	94	ARG	$e^+e^- \to \Upsilon(4S)$
0.099 ±0.030 ±0.009		HENDERSON	92	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.109 ±0.007 ±0.011		ATHANAS	94	CLE2	Sup. by ARTUSO 97

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

$\Gamma(D^- \ell^+ \nu_\ell)/\Gamma_{total}$ — Γ_2/Γ

ℓ denotes e or μ, not the sum.

VALUE	DOCUMENT ID		TECN	COMMENT
0.0200±0.0025 OUR AVERAGE				
0.0187±0.0015±0.0032	[32] ATHANAS	97	CLE2	$e^+e^- \to \Upsilon(4S)$
0.0235±0.0020±0.0044	[33] BUSKULIC	97	ALEP	$e^+e^- \to Z$
0.018 ±0.006 ±0.003	[34] FULTON	91	CLEO	$e^+e^- \to \Upsilon(4S)$
0.020 ±0.007 ±0.006	[35] ALBRECHT	89J	ARG	$e^+e^- \to \Upsilon(4S)$

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

[33] BUSKULIC 97 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.

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

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

$\Gamma(D^*(2010)^- \ell^+ \nu_\ell)/\Gamma_{total}$ — Γ_3/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0460±0.0027 OUR AVERAGE					
0.0508±0.0021±0.0066		[36] ACKERSTAFF	97G	OPAL	$e^+e^- \to Z$
0.0553±0.0026±0.0052		[37] BUSKULIC	97	ALEP	$e^+e^- \to Z$
0.0552±0.0017±0.0068		[38] ABREU	96P	DLPH	$e^+e^- \to Z$
0.0449±0.0032±0.0039	376	[39] BARISH	95	CLE2	$e^+e^- \to \Upsilon(4S)$
0.045 ±0.003 ±0.004		[40] ALBRECHT	94	ARG	$e^+e^- \to \Upsilon(4S)$
0.047 ±0.005 ±0.005	235	[41] ALBRECHT	93	ARG	$e^+e^- \to \Upsilon(4S)$
0.040 ±0.004 ±0.006		[42] BORTOLETTO	89B	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.0518±0.0030±0.0062	410	[43] BUSKULIC	95N	ALEP	Sup. by BUSKULIC 97
seen	398	[44] SANGHERA	93	CLE2	$e^+e^- \to \Upsilon(4S)$
0.070 ±0.018 ±0.014		[45] ANTREASYAN	90B	CBAL	$e^+e^- \to \Upsilon(4S)$
		[46] ALBRECHT	89C	ARG	$e^+e^- \to \Upsilon(4S)$
0.060 ±0.010 ±0.014		[47] ALBRECHT	89J	ARG	$e^+e^- \to \Upsilon(4S)$
0.070 ±0.012 ±0.019	47	[48] ALBRECHT	87J	ARG	$e^+e^- \to \Upsilon(4S)$

[36] 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.

[37] 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.

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

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

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

[41] 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 ± 0.4 ± 0.2, $A_{AF} = 3/4*(\Gamma^- - \Gamma^+)/\Gamma$ = 0.2 ± 0.08 ± 0.06 and a value of $|V_{cb}|$ = 0.036–0.045 depending on model assumptions.

[42] We have taken average of the the BORTOLETTO 89B values for electrons and muons, $0.046 \pm 0.005 \pm 0.007$. 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 $\alpha = 0.65 \pm 0.66 \pm 0.25$.

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

[44] 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.

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

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

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

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

$\Gamma(\rho^- \ell^+ \nu_\ell)/\Gamma_{total}$ Γ_4/Γ

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

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
$2.5 \pm 0.4^{+0.7}_{-0.9}$		[49] ALEXANDER	96T	CLE2	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<4.1	90	[50] BEAN	93B	CLE2	$e^+ e^- \to \Upsilon(4S)$

[49] ALEXANDER 96T gives systematic errors $^{+0.5}_{-0.7} \pm 0.5$ where the second error reflects the estimated model dependence. We combine these in quadrature. Assumes isospin symmetry: $\Gamma(B^0 \to \rho^- \ell^+ \nu_\ell) = 2 \times \Gamma(B^+ \to \rho^0 \ell^+ \nu_\ell) \sim 2 \times \Gamma(B^+ \to \omega \ell^+ \nu_\ell)$.

[50] 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 $<(1.6$–$2.7) \times 10^{-4}$ at 90% CL for $B^+ \to (\omega$ or $\rho^0) \ell^+ \nu_\ell$. The range corresponds to the ISGW, WSB, and KS models. An upper limit on $|V_{ub}/V_{cb}| < 0.08$–0.13 at 90% CL is derived as well.

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

VALUE (units 10^{-4})	DOCUMENT ID		TECN	COMMENT
$1.8 \pm 0.4 \pm 0.4$	[51] ALEXANDER	96T	CLE2	$e^+ e^- \to \Upsilon(4S)$

[51] 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: $\Gamma(B^0 \to \pi^- \ell^+ \nu_\ell) = 2 \times \Gamma(B^+ \to \pi^0 \ell^+ \nu_\ell)$.

$\Gamma(\pi^- \mu^+ \nu_\mu)/\Gamma_{total}$ Γ_6/Γ

VALUE	DOCUMENT ID		TECN
• • • We do not use the following data for averages, fits, limits, etc. • • •			
seen	[52] ALBRECHT	91C	ARG

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

$\Gamma(K^+ \text{anything})/\Gamma_{total}$ Γ_7/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.78±0.8	[53] ALBRECHT	96D	ARG	$e^+e^- \to \Upsilon(4S)$

[53] Average multiplicity.

$\Gamma(D^-\pi^+)/\Gamma_{total}$ Γ_8/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0030±0.0004 OUR AVERAGE					
0.0029±0.0004±0.0002	81	[54] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$
0.0027±0.0006±0.0005		[55] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
0.0048±0.0011±0.0011	22	[56] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$
$0.0051^{+0.0028}_{-0.0025}{}^{+0.0013}_{-0.0012}$	4	[57] BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.0031±0.0013±0.0010	7	[56] ALBRECHT	88K	ARG	$e^+e^- \to \Upsilon(4S)$

[54] ALAM 94 reports $[B(B^0 \to D^-\pi^+) \times B(D^+ \to K^-\pi^+\pi^+)] = 0.000265 \pm 0.000032 \pm 0.000023$. We divide by our best value $B(D^+ \to K^-\pi^+\pi^+) = (9.0 \pm 0.6) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

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

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

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

$\Gamma(D^-\rho^+)/\Gamma_{total}$ Γ_9/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0079±0.0014 OUR AVERAGE					
0.0078±0.0013±0.0005	79	[58] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$
0.009 ±0.005 ±0.003	9	[59] 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	[59] ALBRECHT	88K	ARG	$e^+e^- \to \Upsilon(4S)$

[58] ALAM 94 reports $[B(B^0 \to D^-\rho^+) \times B(D^+ \to K^-\pi^+\pi^+)] = 0.000704 \pm 0.000096 \pm 0.000070$. We divide by our best value $B(D^+ \to K^-\pi^+\pi^+) = (9.0 \pm 0.6) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

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

$\Gamma(\overline{D}^0\pi^+\pi^-)/\Gamma_{total}$ Γ_{10}/Γ

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<0.0016	90		[60] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$

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

<0.007	90		[61] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
<0.034	90		[62] BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$
0.07 ±0.05		5	[63] BEHRENDS	83	CLEO	$e^+e^- \to \Upsilon(4S)$

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

[61] 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.

[62] 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.

[63] 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 $B(B^0 \to \overline{D}^0\pi^+\pi^-)B(\overline{D}^0 \to K^+\pi^-) = (0.39 \pm 0.26) \times 10^{-2}$.

$\Gamma(D^*(2010)^-\pi^+)/\Gamma_{total}$ Γ_{11}/Γ

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.00276±0.00021 OUR AVERAGE					
0.00281±0.00024±0.00005		[64] BRANDENB...	98	CLE2	$e^+e^- \to \Upsilon(4S)$
0.0026 ±0.0003 ±0.0004	82	[65] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$
0.0033 ±0.0010 ±0.0001		[66] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
0.00234±0.00087±0.00005	12	[67] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$
$0.00234^{+0.00148}_{-0.00109}$±0.00005	5	[68] BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.010 ±0.004 ±0.001	8	[69] AKERS	94J	OPAL	$e^+e^- \to Z$
0.0027 ±0.0014 ±0.0010	5	[70] ALBRECHT	87C	ARG	$e^+e^- \to \Upsilon(4S)$
0.0035 ±0.002 ±0.002		[71] ALBRECHT	86F	ARG	$e^+e^- \to \Upsilon(4S)$
0.017 ±0.005 ±0.005	41	[72] GILES	84	CLEO	$e^+e^- \to \Upsilon(4S)$

[64] 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 $B(D^* \to D\pi)$.

[65] 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 $B(D^0 \to K^-\pi^+\pi^+\pi^-)/B(D^0 \to K^-\pi^+)$.

[66] BORTOLETTO 92 reports $0.0040 \pm 0.0010 \pm 0.0007$ for $B(D^*(2010)^+ \to D^0\pi^+) = 0.57 \pm 0.06$. We rescale to our best value $B(D^*(2010)^+ \to D^0\pi^+) = (68.3 \pm 1.4) \times 10^{-2}$. 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.

[67] ALBRECHT 90J reports $0.0028 \pm 0.0009 \pm 0.0006$ for $B(D^*(2010)^+ \to D^0\pi^+) = 0.57 \pm 0.06$. We rescale to our best value $B(D^*(2010)^+ \to D^0\pi^+) = (68.3 \pm 1.4) \times 10^{-2}$. 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.

[68] BEBEK 87 reports $0.0028^{+0.0015}_{-0.0012}{}^{+0.0010}_{-0.0006}$ for $B(D^*(2010)^+ \to D^0\pi^+) = 0.57 \pm 0.06$. We rescale to our best value $B(D^*(2010)^+ \to D^0\pi^+) = (68.3 \pm 1.4) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error

from using our best value. Updated in BERKELMAN 91 to use same assumptions as noted for BORTOLETTO 92 and ALBRECHT 90J.

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

[70] 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.

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

[72] 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 ± 0.02 Does not depend on D branching ratios.

$\Gamma(D^- \pi^+ \pi^+ \pi^-)/\Gamma_{total}$ — Γ_{12}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
0.0080±0.0021±0.0014	[73] BORTOLETTO92	CLEO	$e^+ e^- \to \Upsilon(4S)$

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

$\Gamma((D^- \pi^+ \pi^+ \pi^-)\text{ nonresonant})/\Gamma_{total}$ — Γ_{13}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
0.0039±0.0014±0.0013	[74] BORTOLETTO92	CLEO	$e^+ e^- \to \Upsilon(4S)$

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

$\Gamma(D^- \pi^+ \rho^0)/\Gamma_{total}$ — Γ_{14}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
0.0011±0.0009±0.0004	[75] BORTOLETTO92	CLEO	$e^+ e^- \to \Upsilon(4S)$

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

$\Gamma(D^- a_1(1260)^+)/\Gamma_{total}$ — Γ_{15}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
0.0060±0.0022±0.0024	[76] BORTOLETTO92	CLEO	$e^+ e^- \to \Upsilon(4S)$

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

$\Gamma(D^*(2010)^- \pi^+ \pi^0)/\Gamma_{total}$ — Γ_{16}/Γ

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.0150±0.0051±0.0003	51	[77] 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	[78] ALBRECHT 87C	ARG	$e^+ e^- \to \Upsilon(4S)$

[77] ALBRECHT 90J reports 0.018 ± 0.004 ± 0.005 for B($D^*(2010)^+ \to D^0 \pi^+$) = 0.57 ± 0.06. We rescale to our best value B($D^*(2010)^+ \to D^0 \pi^+$) = (68.3 ± 1.4) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

[78] 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.

$\Gamma(D^*(2010)^- \rho^+)/\Gamma_{total}$ — Γ_{17}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0067±0.0033 OUR AVERAGE					
0.0159±0.0112±0.0003		[79] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
0.0058±0.0035±0.0001	19	[80] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.0074±0.0010±0.0014	76	[81,82] ALAM	94	CLE2	Sup. by JESSOP 97
0.081 ±0.029 $^{+0.059}_{-0.024}$	19	[83] CHEN	85	CLEO	$e^+e^- \to \Upsilon(4S)$

[79] BORTOLETTO 92 reports 0.019 ± 0.008 ± 0.011 for B($D^*(2010)^+ \to D^0\pi^+$) = 0.57 ± 0.06. We rescale to our best value B($D^*(2010)^+ \to D^0\pi^+$) = (68.3 ± 1.4) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

[80] ALBRECHT 90J reports 0.007 ± 0.003 ± 0.003 for B($D^*(2010)^+ \to D^0\pi^+$) = 0.57 ± 0.06. We rescale to our best value B($D^*(2010)^+ \to D^0\pi^+$) = (68.3 ± 1.4) × 10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

[81] 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($D^0 \to K^-\pi^+\pi^+\pi^-$)/B($D^0 \to K^-\pi^+$).

[82] This decay is nearly completely longitudinally polarized, Γ_L/Γ = (93 ± 5 ± 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.

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

$\Gamma(D^*(2010)^- \pi^+\pi^+\pi^-)/\Gamma_{total}$ — Γ_{18}/Γ

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
0.0076±0.0017 OUR AVERAGE			Error includes scale factor of 1.3. See the ideogram below.			
0.0063±0.0010±0.0011		49	[84,85] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$
0.0133±0.0036±0.0003			[86] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
0.0100±0.0040±0.0002		26	[87] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
0.033 ±0.009 ±0.016		27	[88] ALBRECHT	87C	ARG	$e^+e^- \to \Upsilon(4S)$
<0.042	90		[89] BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$

[84] 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($D^0 \to K^-\pi^+\pi^+\pi^-$)/B($D^0 \to K^-\pi^+$).

[85] 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 $\overline{D}^{*-}\pi^+\pi^+\pi^-$.)

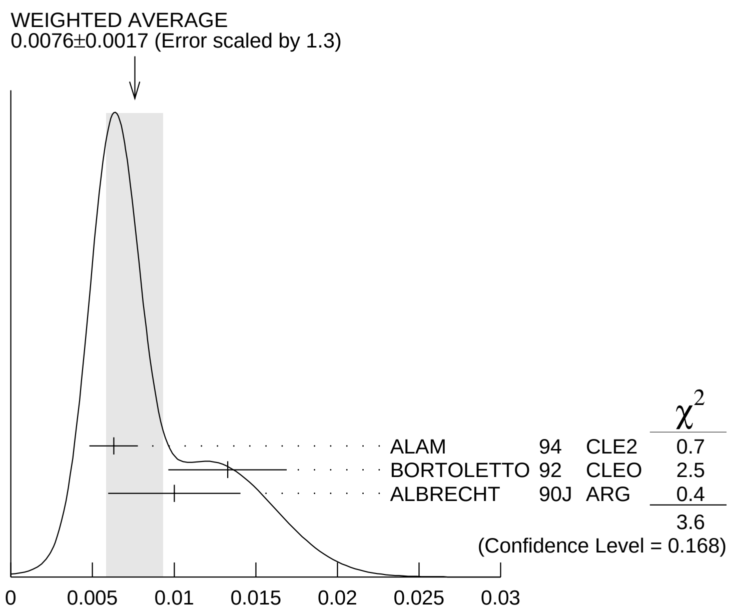
[86] BORTOLETTO 92 reports 0.0159 ± 0.0028 ± 0.0037 for B($D^*(2010)^+ \to D^0\pi^+$) = 0.57 ± 0.06. We rescale to our best value B($D^*(2010)^+ \to D^0\pi^+$) = (68.3 ± 1.4) ×

10^{-2}. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

[87] ALBRECHT 90J reports $0.012 \pm 0.003 \pm 0.004$ for B($D^*(2010)^+ \rightarrow D^0 \pi^+$) = 0.57 ± 0.06. We rescale to our best value B($D^*(2010)^+ \rightarrow D^0 \pi^+$) = $(68.3 \pm 1.4) \times 10^{-2}$. 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.

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

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



$\Gamma\left(D^*(2010)^- \pi^+ \pi^+ \pi^-\right)/\Gamma_{total}$

$\Gamma\left((D^*(2010)^- \pi^+ \pi^+ \pi^-) \text{ nonresonant}\right)/\Gamma_{total}$ Γ_{19}/Γ

VALUE		DOCUMENT ID	TECN	COMMENT
0.0000±0.0019±0.0016	[90]	BORTOLETTO92	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$

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

$\Gamma(D^*(2010)^- \pi^+ \rho^0)/\Gamma_{total}$ — Γ_{20}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
0.0057±0.0031±0.0001	[91] BORTOLETTO 92	CLEO	$e^+e^- \to \Upsilon(4S)$

[91] BORTOLETTO 92 reports $0.0068 \pm 0.0032 \pm 0.0021$ for $B(D^*(2010)^+ \to D^0\pi^+) = 0.57 \pm 0.06$. We rescale to our best value $B(D^*(2010)^+ \to D^0\pi^+) = (68.3 \pm 1.4) \times 10^{-2}$. 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.

$\Gamma(D^*(2010)^- a_1(1260)^+)/\Gamma_{total}$ — Γ_{21}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.0130±0.0027 OUR AVERAGE				
0.0126±0.0020±0.0022	[92,93] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$
0.0150±0.0069±0.0003	[94] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$

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

[93] 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 $B(D^0 \to K^-\pi^+\pi^+\pi^-)/B(D^0 \to K^-\pi^+)$.

[94] BORTOLETTO 92 reports $0.018 \pm 0.006 \pm 0.006$ for $B(D^*(2010)^+ \to D^0\pi^+) = 0.57 \pm 0.06$. We rescale to our best value $B(D^*(2010)^+ \to D^0\pi^+) = (68.3 \pm 1.4) \times 10^{-2}$. 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.

$\Gamma(D^*(2010)^- \pi^+\pi^+\pi^-\pi^0)/\Gamma_{total}$ — Γ_{22}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.034±0.018±0.001	28	[95] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$

[95] ALBRECHT 90J reports $0.041 \pm 0.015 \pm 0.016$ for $B(D^*(2010)^+ \to D^0\pi^+) = 0.57 \pm 0.06$. We rescale to our best value $B(D^*(2010)^+ \to D^0\pi^+) = (68.3 \pm 1.4) \times 10^{-2}$. 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.

$\Gamma(\overline{D}_2^*(2460)^- \pi^+)/\Gamma_{total}$ — Γ_{23}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0022	90	[96] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$

[96] 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 $B(D_2^*(2460)^+ \to D^0\pi^+) = 30\%$.

$\Gamma(\overline{D}_2^*(2460)^- \rho^+)/\Gamma_{total}$ — Γ_{24}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0049	90	[97] ALAM	94	CLE2	$e^+e^- \to \Upsilon(4S)$

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

$\Gamma(D^- D_s^+)/\Gamma_{total}$ Γ_{25}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0080±0.0030 OUR AVERAGE					
$0.0084 \pm 0.0030 {}^{+0.0020}_{-0.0021}$		[98] GIBAUT	96	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
$0.013 \pm 0.011 \pm 0.003$		[99] ALBRECHT	92G	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$
$0.007 \pm 0.004 \pm 0.002$		[100] BORTOLETTO	92	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.012 ± 0.007	3	[101] BORTOLETTO	90	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$

[98] GIBAUT 96 reports $0.0087 \pm 0.0024 \pm 0.0020$ for B($D_s^+ \rightarrow \phi\pi^+$) = 0.035. We rescale to our best value B($D_s^+ \rightarrow \phi\pi^+$) = $(3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[99] ALBRECHT 92G reports $0.017 \pm 0.013 \pm 0.006$ for B($D_s^+ \rightarrow \phi\pi^+$) = 0.027. We rescale to our best value B($D_s^+ \rightarrow \phi\pi^+$) = $(3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes PDG 1990 D^+ branching ratios, e.g., B($D^+ \rightarrow K^- \pi^+ \pi^+$) = 7.7 ± 1.0%.

[100] BORTOLETTO 92 reports $0.0080 \pm 0.0045 \pm 0.0030$ for B($D_s^+ \rightarrow \phi\pi^+$) = 0.030 ± 0.011. We rescale to our best value B($D_s^+ \rightarrow \phi\pi^+$) = $(3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D.

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

$\Gamma(D^*(2010)^- D_s^+)/\Gamma_{total}$ Γ_{26}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0096±0.0034 OUR AVERAGE					
$0.0090 \pm 0.0027 \pm 0.0022$		[102] GIBAUT	96	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
$0.010 \pm 0.008 \pm 0.003$		[103] ALBRECHT	92G	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$
$0.013 \pm 0.008 \pm 0.003$		[104] BORTOLETTO	92	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.024 ± 0.014	3	[105] BORTOLETTO	90	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$

[102] GIBAUT 96 reports $0.0093 \pm 0.0023 \pm 0.0016$ for B($D_s^+ \rightarrow \phi\pi^+$) = 0.035. We rescale to our best value B($D_s^+ \rightarrow \phi\pi^+$) = $(3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[103] ALBRECHT 92G reports $0.014 \pm 0.010 \pm 0.003$ for B($D_s^+ \rightarrow \phi\pi^+$) = 0.027. We rescale to our best value B($D_s^+ \rightarrow \phi\pi^+$) = $(3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes PDG 1990 D^+ and $D^*(2010)^+$ branching ratios, e.g., B($D^0 \rightarrow K^- \pi^+$) = 3.71 ± 0.25%, B($D^+ \rightarrow K^- \pi^+ \pi^+$) = 7.1 ± 1.0%, and B($D^*(2010)^+ \rightarrow D^0 \pi^+$) = 55 ± 4%.

[104] BORTOLETTO 92 reports $0.016 \pm 0.009 \pm 0.006$ for B($D_s^+ \rightarrow \phi\pi^+$) = 0.030 ± 0.011. We rescale to our best value B($D_s^+ \rightarrow \phi\pi^+$) = $(3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$ and uses Mark III branching fractions for the D and $D^*(2010)$.

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

$\Gamma(D^- D_s^{*+})/\Gamma_{total}$ — Γ_{27}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.010±0.005 OUR AVERAGE				
0.010±0.004±0.002	[106] GIBAUT	96	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
0.020±0.014±0.005	[107] ALBRECHT	92G	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[106] GIBAUT 96 reports $0.0100 \pm 0.0035 \pm 0.0022$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.035$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = (3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[107] ALBRECHT 92G reports $0.027 \pm 0.017 \pm 0.009$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = (3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes PDG 1990 D^+ branching ratios, e.g., $B(D^+ \rightarrow K^- \pi^+ \pi^+) = 7.7 \pm 1.0\%$.

$[\Gamma(D^*(2010)^- D_s^+) + \Gamma(D^*(2010)^- D_s^{*+})]/\Gamma_{total}$ — $(\Gamma_{26}+\Gamma_{28})/\Gamma$

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
$4.15\pm1.11^{+0.99}_{-1.02}$	22	[108] BORTOLETTO	90	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$

[108] BORTOLETTO 90 reports 7.5 ± 2.0 for $B(D_s^+ \rightarrow \phi\pi^+) = 0.02$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = (3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

$\Gamma(D^*(2010)^- D_s^{*+})/\Gamma_{total}$ — Γ_{28}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.020±0.007 OUR AVERAGE				
0.020±0.006±0.005	[109] GIBAUT	96	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
0.019±0.011±0.005	[110] ALBRECHT	92G	ARG	$e^+ e^- \rightarrow \Upsilon(4S)$

[109] GIBAUT 96 reports $0.0203 \pm 0.0050 \pm 0.0036$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.035$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = (3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

[110] ALBRECHT 92G reports $0.026 \pm 0.014 \pm 0.006$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = (3.6 \pm 0.9) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best value. Assumes PDG 1990 D^+ and $D^*(2010)^+$ branching ratios, e.g., $B(D^0 \rightarrow K^- \pi^+) = 3.71 \pm 0.25\%$, $B(D^+ \rightarrow K^- \pi^+ \pi^+) = 7.1 \pm 1.0\%$, and $B(D^*(2010)^+ \rightarrow D^0 \pi^+) = 55 \pm 4\%$.

$\Gamma(D_s^+ \pi^-)/\Gamma_{total}$ — Γ_{29}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.00028	90	[111] ALEXANDER	93B	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0013	90	[112] BORTOLETTO	90	CLEO	$e^+ e^- \rightarrow \Upsilon(4S)$

[111] ALEXANDER 93B reports $< 2.7 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

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

$\Gamma(D_s^{*+}\pi^-)/\Gamma_{total}$ — Γ_{30}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0005	90	[113] ALEXANDER	93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[113] ALEXANDER 93B reports $< 4.4 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$[\Gamma(D_s^+\pi^-)+\Gamma(D_s^-K^+)]/\Gamma_{total}$ — $(\Gamma_{29}+\Gamma_{35})/\Gamma$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0013	90	[114] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[114] ALBRECHT 93E reports $< 1.7 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$[\Gamma(D_s^{*+}\pi^-)+\Gamma(D_s^{*-}K^+)]/\Gamma_{total}$ — $(\Gamma_{30}+\Gamma_{36})/\Gamma$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0009	90	[115] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[115] ALBRECHT 93E reports $< 1.2 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^+\rho^-)/\Gamma_{total}$ — Γ_{31}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0007	90	[116] ALEXANDER	93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0016	90	[117] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[116] ALEXANDER 93B reports $< 6.6 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

[117] ALBRECHT 93E reports $< 2.2 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^{*+}\rho^-)/\Gamma_{total}$ — Γ_{32}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0008	90	[118] ALEXANDER	93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0019	90	[119] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[118] ALEXANDER 93B reports $< 7.4 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

[119] ALBRECHT 93E reports $< 2.5 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^+ a_1(1260)^-)/\Gamma_{total}$ — Γ_{33}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0026	90	[120] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[120] ALBRECHT 93E reports $< 3.5 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^{*+} a_1(1260)^-)/\Gamma_{total}$ Γ_{34}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0022	90	[121] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[121] ALBRECHT 93E reports $< 2.9 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^- K^+)/\Gamma_{total}$ Γ_{35}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.00024	90	[122] ALEXANDER	93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0013	90	[123] BORTOLETTO	90	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[122] ALEXANDER 93B reports $< 2.3 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

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

$\Gamma(D_s^{*-} K^+)/\Gamma_{total}$ Γ_{36}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.00017	90	[124] ALEXANDER	93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[124] ALEXANDER 93B reports $< 1.7 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^- K^*(892)^+)/\Gamma_{total}$ Γ_{37}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0010	90	[125] ALEXANDER	93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0034	90	[126] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[125] ALEXANDER 93B reports $< 9.7 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

[126] ALBRECHT 93E reports $< 4.6 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0011	90	[127] ALEXANDER	93B	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.004	90	[128] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[127] ALEXANDER 93B reports $< 11.0 \times 10^{-4}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.037$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

[128] ALBRECHT 93E reports $< 5.8 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^- \pi^+ K^0)/\Gamma_{total}$ — Γ_{39}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.005	90	[129] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[129] ALBRECHT 93E reports $< 7.3 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^{*-} \pi^+ K^0)/\Gamma_{total}$ — Γ_{40}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0031	90	[130] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[130] ALBRECHT 93E reports $< 4.2 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^- \pi^+ K^*(892)^0)/\Gamma_{total}$ — Γ_{41}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.004	90	[131] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[131] ALBRECHT 93E reports $< 5.0 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(D_s^{*-} \pi^+ K^*(892)^0)/\Gamma_{total}$ — Γ_{42}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0020	90	[132] ALBRECHT	93E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[132] ALBRECHT 93E reports $< 2.7 \times 10^{-3}$ for $B(D_s^+ \rightarrow \phi\pi^+) = 0.027$. We rescale to our best value $B(D_s^+ \rightarrow \phi\pi^+) = 0.036$.

$\Gamma(\overline{D}^0 \pi^0)/\Gamma_{total}$ — Γ_{43}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.00012	90	[133] NEMATI	98	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.00048	90	[134] ALAM	94	CLE2	Repl. by NEMATI 98

[133] 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.

[134] ALAM 94 assume equal production of B^+ and B^0 at the $\Upsilon(4S)$ and use the CLEO II 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 $B(D^0 \rightarrow K^-\pi^+\pi^+\pi^-)/B(D^0 \rightarrow K^-\pi^+)$.

$\Gamma(\overline{D}^0 \rho^0)/\Gamma_{total}$ — Γ_{44}/Γ

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<0.00039	90		[135] NEMATI	98	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.00055	90		[136] ALAM	94	CLE2	Repl. by NEMATI 98
<0.0006	90		[137] BORTOLETTO	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
<0.0027	90	4	[138] ALBRECHT	88K	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

[135] 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.

[136] 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($D^0 \to K^- \pi^+ \pi^+ \pi^-$)/B($D^0 \to K^- \pi^+$).

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

[138] ALBRECHT 88K reports < 0.003 assuming $B^0 \overline{B}^0$:$B^+ B^-$ production ratio is 45:55. We rescale to 50%.

$\Gamma(\overline{D}^0 \eta)/\Gamma_{total}$ — Γ_{45}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.00013	90	[139] NEMATI	98	CLE2	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.00068	90	[140] ALAM	94	CLE2	Repl. by NEMATI 98

[139] 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.

[140] 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($D^0 \to K^- \pi^+ \pi^+ \pi^-$)/B($D^0 \to K^- \pi^+$).

$\Gamma(\overline{D}^0 \eta')/\Gamma_{total}$ — Γ_{46}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.00094	90	[141] NEMATI	98	CLE2	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.00086	90	[142] ALAM	94	CLE2	Repl. by NEMATI 98

[141] 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.

[142] 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($D^0 \to K^- \pi^+ \pi^+ \pi^-$)/B($D^0 \to K^- \pi^+$).

$\Gamma(\overline{D}^0 \omega)/\Gamma_{total}$ — Γ_{47}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.00051	90	[143] NEMATI	98	CLE2	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.00063	90	[144] ALAM	94	CLE2	Repl. by NEMATI 98

[143] 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.

[144] 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($D^0 \to K^- \pi^+ \pi^+ \pi^-$)/B($D^0 \to K^- \pi^+$).

$\Gamma(\overline{D}^*(2007)^0 \pi^0)/\Gamma_{total}$ — Γ_{48}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.00044	90	[145] NEMATI	98	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.00097	90	[146] ALAM	94	CLE2	Repl. by NEMATI 98

[145] 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.

[146] 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($D^0 \rightarrow K^- \pi^+ \pi^+ \pi^-$)/B($D^0 \rightarrow K^- \pi^+$).

$\Gamma(\overline{D}^*(2007)^0 \rho^0)/\Gamma_{total}$ — Γ_{49}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.00056	90	[147] NEMATI	98	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.00117	90	[148] ALAM	94	CLE2	Repl. by NEMATI 98

[147] 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.

[148] 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($D^0 \rightarrow K^- \pi^+ \pi^+ \pi^-$)/B($D^0 \rightarrow K^- \pi^+$).

$\Gamma(\overline{D}^*(2007)^0 \eta)/\Gamma_{total}$ — Γ_{50}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.00026	90	[149] NEMATI	98	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.00069	90	[150] ALAM	94	CLE2	Repl. by NEMATI 98

[149] 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.

[150] 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($D^0 \rightarrow K^- \pi^+ \pi^+ \pi^-$)/B($D^0 \rightarrow K^- \pi^+$).

$\Gamma(\overline{D}^*(2007)^0 \eta')/\Gamma_{total}$ — Γ_{51}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0014	90	BRANDENB...	98	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0019	90	[151] NEMATI	98	CLE2	$e^+ e^- \rightarrow \Upsilon(4S)$
<0.0027	90	[152] ALAM	94	CLE2	Repl. by NEMATI 98

[151] 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.

[152] 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($D^0 \rightarrow K^- \pi^+ \pi^+ \pi^-$)/B($D^0 \rightarrow K^- \pi^+$).

$\Gamma(\overline{D}^*(2007)^0\omega)/\Gamma_{total}$ Γ_{52}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.00074	90	[153] NEMATI	98	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0021	90	[154] ALAM	94	CLE2	Repl. by NEMATI 98

[153] 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.

[154] 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($D^0 \to K^-\pi^+\pi^+\pi^-$)/B($D^0 \to K^-\pi^+$).

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.2 \times 10^{-3}$	90	[155] ASNER	97	CLE2	$e^+e^- \to \Upsilon(4S)$

[155] ASNER 97 at CLEO observes 1 event with an expected background of 0.022 ± 0.011. This correcsponds to a branching ratio of $(5.3^{+7.1}_{-3.7} \pm 1.0) \times 10^{-4}$.

$\Gamma(D^*(2010)^+ D^-)/\Gamma_{total}$ Γ_{54}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.8 \times 10^{-3}$	90	ASNER	97	CLE2	$e^+e^- \to \Upsilon(4S)$

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.2 \times 10^{-3}$	90	ASNER	97	CLE2	$e^+e^- \to \Upsilon(4S)$

$\Gamma(J/\psi(1S)K^0)/\Gamma_{total}$ Γ_{56}/Γ

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
8.9 ±1.2 OUR AVERAGE						
$8.5\ ^{+1.4}_{-1.2} \pm 0.6$			[156] JESSOP	97	CLE2	$e^+e^- \to \Upsilon(4S)$
11.5 ±2.3 ±1.7			[157] ABE	96H	CDF	$p\overline{p}$ at 1.8 TeV
6.87±4.03±0.22			[158] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
9.2 ±7.1 ±0.3		2	[159] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
7.5 ±2.4 ±0.8		10	[158] ALAM	94	CLE2	Sup. by JESSOP 97
<50	90		ALAM	86	CLEO	$e^+e^- \to \Upsilon(4S)$

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

[157] ABE 96H assumes that B($B^+ \to J/\psi K^+$) = $(1.02 \pm 0.14) \times 10^{-3}$.

[158] BORTOLETTO 92 reports 6 ± 3 ± 2 for B($J/\psi(1S) \to e^+e^-$) = 0.069 ± 0.009. We rescale to our best value B($J/\psi(1S) \to e^+e^-$) = $(6.02 \pm 0.19) \times 10^{-2}$. 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 $\Upsilon(4S)$.

[159] ALBRECHT 90J reports 8 ± 6 ± 2 for B($J/\psi(1S) \to e^+e^-$) = 0.069 ± 0.009. We rescale to our best value B($J/\psi(1S) \to e^+e^-$) = $(6.02 \pm 0.19) \times 10^{-2}$. 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 $\Upsilon(4S)$.

$\Gamma(J/\psi(1S)K^+\pi^-)/\Gamma_{total}$ Γ_{57}/Γ

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
0.00115±0.00055±0.00004			[160] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.0013	90		[161] ALBRECHT	87D	ARG	$e^+e^- \to \Upsilon(4S)$
<0.0063	90	2	GILES	84	CLEO	$e^+e^- \to \Upsilon(4S)$

[160] BORTOLETTO 92 reports $0.0010 \pm 0.0004 \pm 0.0003$ for $B(J/\psi(1S) \to e^+e^-) = 0.069 \pm 0.009$. We rescale to our best value $B(J/\psi(1S) \to e^+e^-) = (6.02 \pm 0.19) \times 10^{-2}$. 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 $\Upsilon(4S)$.

[161] ALBRECHT 87D assume $B^+B^-/B^0\overline{B}^0$ ratio is 55/45. $K\pi$ system is specifically selected as nonresonant.

$\Gamma(J/\psi(1S)K^*(892)^0)/\Gamma_{total}$ Γ_{58}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.00135±0.00018 OUR AVERAGE					
0.00132±0.00017±0.00017		[162] JESSOP	97	CLE2	$e^+e^- \to \Upsilon(4S)$
0.00136±0.00027±0.00022		[163] ABE	96H	CDF	$p\overline{p}$ at 1.8 TeV
0.00126±0.00065±0.00004		[164] BORTOLETTO	92	CLEO	$e^+e^- \to \Upsilon(4S)$
0.00126±0.00059±0.00004	6	[165] ALBRECHT	90J	ARG	$e^+e^- \to \Upsilon(4S)$
0.0040 ±0.0018 ±0.0001	5	[166] BEBEK	87	CLEO	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.00169±0.00031±0.00018	29	[167] ALAM	94	CLE2	Sup. by JESSOP 97
		[168] ALBRECHT	94G	ARG	$e^+e^- \to \Upsilon(4S)$
0.0040 ±0.0030		[169] ALBAJAR	91E	UA1	$E_{cm}^{p\overline{p}}$= 630 GeV
0.0033 ±0.0018	5	[170] ALBRECHT	87D	ARG	$e^+e^- \to \Upsilon(4S)$
0.0041 ±0.0018	5	[171] ALAM	86	CLEO	Repl. by BEBEK 87

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

[163] ABE 96H assumes that $B(B^+ \to J/\psi K^+) = (1.02 \pm 0.14) \times 10^{-3}$.

[164] BORTOLETTO 92 reports $0.0011 \pm 0.0005 \pm 0.0003$ for $B(J/\psi(1S) \to e^+e^-) = 0.069 \pm 0.009$. We rescale to our best value $B(J/\psi(1S) \to e^+e^-) = (6.02 \pm 0.19) \times 10^{-2}$. 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 $\Upsilon(4S)$.

[165] ALBRECHT 90J reports $0.0011 \pm 0.0005 \pm 0.0002$ for $B(J/\psi(1S) \to e^+e^-) = 0.069 \pm 0.009$. We rescale to our best value $B(J/\psi(1S) \to e^+e^-) = (6.02 \pm 0.19) \times 10^{-2}$. 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 $\Upsilon(4S)$.

[166] BEBEK 87 reports $0.0035 \pm 0.0016 \pm 0.0003$ for $B(J/\psi(1S) \to e^+e^-) = 0.069 \pm 0.009$. We rescale to our best value $B(J/\psi(1S) \to e^+e^-) = (6.02 \pm 0.19) \times 10^{-2}$. 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.

[167] 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 $\Upsilon(4S)$.

[168] 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 $K^0_S \pi^0$.
[169] ALBAJAR 91E assumes B^0_d production fraction of 36%.
[170] ALBRECHT 87D assume $B^+ B^- / B^0 \overline{B}^0$ ratio is 55/45. Superseded by ALBRECHT 90J.
[171] 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.

$\Gamma(J/\psi(1S) K^*(892)^0)/\Gamma(J/\psi(1S) K^0)$ — Γ_{58}/Γ_{56}

VALUE	DOCUMENT ID		TECN	COMMENT
1.39±0.36±0.10	ABE	96Q	CDF	$p\overline{p}$

$\Gamma(J/\psi(1S) \pi^0)/\Gamma_{total}$ — Γ_{59}/Γ

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$<5.8 \times 10^{-5}$	90		BISHAI	96	CLE2	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$<3.2 \times 10^{-4}$	90		[172] ACCIARRI	97C	L3	
$<6.9 \times 10^{-3}$	90	1	[173] ALEXANDER	95	CLE2	Sup. by BISHAI 96

[172] ACCIARRI 97C assumes B^0 production fraction (39.5 ± 4.0%) and B_s (12.0 ± 3.0%).
[173] Assumes equal production of $B^+ B^-$ and $B^0 \overline{B}^0$ on $\Upsilon(4S)$.

$\Gamma(J/\psi(1S) \eta)/\Gamma_{total}$ — Γ_{60}/Γ

VALUE	CL%	DOCUMENT ID		TECN
$<1.2 \times 10^{-3}$	90	[174] ACCIARRI	97C	L3

[174] ACCIARRI 97C assumes B^0 production fraction (39.5 ± 4.0%) and B_s (12.0 ± 3.0%).

$\Gamma(J/\psi(1S) \rho^0)/\Gamma_{total}$ — Γ_{61}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.5 \times 10^{-4}$	90	BISHAI	96	CLE2	$e^+ e^- \to \Upsilon(4S)$

$\Gamma(J/\psi(1S) \omega)/\Gamma_{total}$ — Γ_{62}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.7 \times 10^{-4}$	90	BISHAI	96	CLE2	$e^+ e^- \to \Upsilon(4S)$

$\Gamma(\psi(2S) K^0)/\Gamma_{total}$ — Γ_{63}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0008	90	[175] ALAM	94	CLE2	$e^+ e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0015	90	[175] BORTOLETTO	92	CLEO	$e^+ e^- \to \Upsilon(4S)$
<0.0028	90	[175] ALBRECHT	90J	ARG	$e^+ e^- \to \Upsilon(4S)$

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

$\Gamma(\psi(2S) K^+ \pi^-)/\Gamma_{total}$ — Γ_{64}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.001	90	[176] ALBRECHT	90J	ARG	$e^+ e^- \to \Upsilon(4S)$

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

$\Gamma(\psi(2S)K^*(892)^0)/\Gamma_{total}$ — Γ_{65}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
0.0014±0.0008±0.0004		[177] BORTOLETTO	92	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0019	90	[177] ALAM	94	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
<0.0023	90	[177] ALBRECHT	90J	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

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

$\Gamma(\chi_{c1}(1P)K^0)/\Gamma_{total}$ — Γ_{66}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0027	90	[178] ALAM	94	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[178] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(\chi_{c1}(1P)K^*(892)^0)/\Gamma_{total}$ — Γ_{67}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0021	90	[179] ALAM	94	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

[179] BORTOLETTO 92 assumes equal production of B^+ and B^0 at the $\Upsilon(4S)$.

$\Gamma(K^+\pi^-)/\Gamma_{total}$ — Γ_{68}/Γ

VALUE (units 10^{-5})	CL%	DOCUMENT ID		TECN	COMMENT
$1.5^{+0.5}_{-0.4}\pm0.14$		GODANG	98	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$2.4^{+1.7}_{-1.1}\pm0.2$		[180] ADAM	96D	DLPH	$e^+e^- \rightarrow Z$
< 1.7	90	ASNER	96	CLE2	Sup. by ADAM 96D
< 3.0	90	[181] BUSKULIC	96V	ALEP	$e^+e^- \rightarrow Z$
< 9	90	[182] ABREU	95N	DLPH	Sup. by ADAM 96D
< 8.1	90	[183] AKERS	94L	OPAL	$e^+e^- \rightarrow Z$
< 2.6	90	[184] BATTLE	93	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
<18	90	ALBRECHT	91B	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
< 9	90	[185] AVERY	89B	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
<32	90	AVERY	87	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[180] 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.
[181] BUSKULIC 96V assumes PDG 96 production fractions for B^0, B^+, B_s, b baryons.
[182] 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.
[183] Assumes B($Z \rightarrow b\overline{b}$) = 0.217 and B^0_d (B^0_s) fraction 39.5% (12%).
[184] BATTLE 93 assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.
[185] Assumes the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$.

$\Gamma(K^0\pi^0)/\Gamma_{total}$ — Γ_{69}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<4.1\times10^{-5}$	90	GODANG	98	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<4.0\times10^{-5}$	90	ASNER	96	CLE2	Rep. by GODANG 98

$\Gamma(\eta' K^0)/\Gamma_{total}$ **Γ_{70}/Γ**

VALUE	DOCUMENT ID		TECN	COMMENT
$(4.7^{+2.7}_{-2.0}\pm0.9)\times10^{-5}$	BEHRENS	98	CLE2	$e^+e^- \to \Upsilon(4S)$

$\Gamma(\eta' K^*(892)^0)/\Gamma_{total}$ **Γ_{71}/Γ**

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<3.9\times10^{-5}$	90	BEHRENS	98	CLE2	$e^+e^- \to \Upsilon(4S)$

$\Gamma(\eta K^*(892)^0)/\Gamma_{total}$ **Γ_{72}/Γ**

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<3.0\times10^{-5}$	90	BEHRENS	98	CLE2	$e^+e^- \to \Upsilon(4S)$

$\Gamma(\eta K^0)/\Gamma_{total}$ **Γ_{73}/Γ**

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<3.3\times10^{-5}$	90	BEHRENS	98	CLE2	$e^+e^- \to \Upsilon(4S)$

$[\Gamma(K^+\pi^-)+\Gamma(\pi^+\pi^-)]/\Gamma_{total}$ **$(\Gamma_{68}+\Gamma_{105})/\Gamma$**

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$(1.9\pm0.6\ )\times10^{-5}$ OUR AVERAGE					
$(2.8^{+1.5}_{-1.0}\pm2.0)\times10^{-5}$		[186] ADAM	96D	DLPH	$e^+e^- \to Z$
$(1.8^{+0.6}_{-0.5}{}^{+0.3}_{-0.4})\times10^{-5}$	17.2	ASNER	96	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$(2.4^{+0.8}_{-0.7}\pm0.2)\times10^{-5}$		[187] BATTLE	93	CLE2	$e^+e^- \to \Upsilon(4S)$

[186] 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.

[187] BATTLE 93 assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(K^+K^-)/\Gamma_{total}$ **Γ_{74}/Γ**

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<4.3\times10^{-6}$	90	GODANG	98	CLE2	$e^+e^- \to \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<4.6\times10^{-5}$		[188] ADAM	96D	DLPH	$e^+e^- \to Z$
$<0.4\times10^{-5}$	90	ASNER	96	CLE2	Repl. by GODANG 98
$<1.8\times10^{-5}$	90	[189] BUSKULIC	96V	ALEP	$e^+e^- \to Z$
$<1.2\times10^{-4}$	90	[190] ABREU	95N	DLPH	Sup. by ADAM 96D
$<0.7\times10^{-5}$	90	[191] BATTLE	93	CLE2	$e^+e^- \to \Upsilon(4S)$

[188] 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.

[189] BUSKULIC 96V assumes PDG 96 production fractions for B^0, B^+, B_s, b baryons.

[190] 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.

[191] BATTLE 93 assumes equal production of $B^0\overline{B}^0$ and B^+B^- at $\Upsilon(4S)$.

$\Gamma(K^0\overline{K}^0)/\Gamma_{total}$ Γ_{75}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.7 × 10^{-5}	90	GODANG	98	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

$\Gamma(K^+\rho^-)/\Gamma_{total}$ Γ_{76}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<3.5 × 10^{-5}	90	ASNER	96	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

$\Gamma(K^0\pi^+\pi^-)/\Gamma_{total}$ Γ_{77}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<4.4 × 10^{-4}	90	ALBRECHT	91E	ARG	$e^+e^- \rightarrow \Upsilon(4S)$

$\Gamma(K^0\rho^0)/\Gamma_{total}$ Γ_{78}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<3.9 × 10^{-5}	90	ASNER	96	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<3.2 × 10^{-4}	90	ALBRECHT	91B	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
<5.0 × 10^{-4}	90	[192] AVERY	89B	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
<0.064	90	[193] AVERY	87	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[192] AVERY 89B reports $< 5.8 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.
[193] AVERY 87 reports < 0.08 assuming the $\Upsilon(4S)$ decays 40% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^0 f_0(980))/\Gamma_{total}$ Γ_{79}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<3.6 × 10^{-4}	90	[194] AVERY	89B	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[194] AVERY 89B reports $< 4.2 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^*(892)^+\pi^-)/\Gamma_{total}$ Γ_{80}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<7.2 × 10^{-5}	90	ASNER	96	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$
<3.8 × 10^{-4}	90	[195] AVERY	89B	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<6.2 × 10^{-4}	90	ALBRECHT	91B	ARG	$e^+e^- \rightarrow \Upsilon(4S)$
<5.6 × 10^{-4}	90	[196] AVERY	87	CLEO	$e^+e^- \rightarrow \Upsilon(4S)$

[195] AVERY 89B reports $< 4.4 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 43% to $B^0\overline{B}^0$. We rescale to 50%.
[196] AVERY 87 reports $< 7 \times 10^{-4}$ assuming the $\Upsilon(4S)$ decays 40% to $B^0\overline{B}^0$. We rescale to 50%.

$\Gamma(K^*(892)^0\pi^0)/\Gamma_{total}$ Γ_{81}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.8 × 10^{-5}	90	ASNER	96	CLE2	$e^+e^- \rightarrow \Upsilon(4S)$

$\Gamma(K_2^*(1430)^+\pi^-)/\Gamma_{total}$ Γ_{82}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT