

$\psi(4360)$

$$I^G(J^{PC}) = 0^-(1^{--})$$

also known as $Y(4360)$; was $X(4360)$

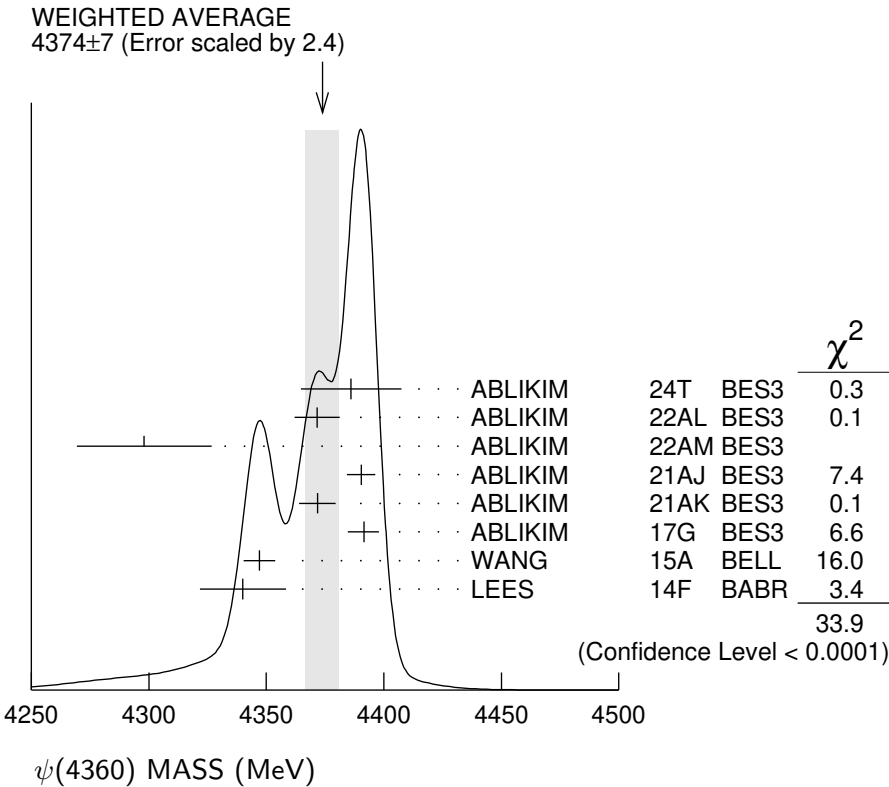
See the reviews on the "Spectroscopy of Mesons Containing two Heavy Quarks" and on "Heavy Non-qqbar Mesons."

 $\psi(4360)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
4374 $\pm$ 7	OUR AVERAGE	Error includes scale factor of 2.4. See the ideogram below.		
4386 $\pm$ 13 $\pm$ 17		¹ ABLIKIM	24T BES3	$e^+e^- \rightarrow \eta J/\psi$
4371.6 $\pm$ 2.5 $\pm$ 9.2		² ABLIKIM	22AL BES3	$e^+e^- \rightarrow \pi^+\pi^- D^+ D^-$
4298 $\pm$ 12 $\pm$ 26		³ ABLIKIM	22AMBES3	$e^+e^- \rightarrow \pi^+\pi^- J/\psi$
4390.3 $\pm$ 6.0 $\pm$ 0.7		⁴ ABLIKIM	21AJ BES3	$e^+e^- \rightarrow \pi^+\pi^- \psi(2S)$
4371.7 $\pm$ 7.5 $\pm$ 1.8		⁵ ABLIKIM	21AK BES3	$e^+e^- \rightarrow \gamma \chi_{c2} \rightarrow \gamma \gamma J/\psi$
4391.5 $^{+6.3}_{-6.8} \pm$ 1.0		ABLIKIM	17G BES3	$e^+e^- \rightarrow \pi^+\pi^- h_c$
4347 $\pm$ 6 $\pm$ 3	279	⁶ WANG	15A BELL	10.58 $e^+e^- \rightarrow \gamma \pi^+\pi^- \psi(2S)$
4340 $\pm$ 16 $\pm$ 9	37	⁷ LEES	14F BABR	10.58 $e^+e^- \rightarrow \gamma \pi^+\pi^- \psi(2S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4406.9 $\pm$ 17.2 $\pm$ 4.5		⁸ ABLIKIM	22R BES3	$e^+e^- \rightarrow \pi^+\pi^- \chi_{c1} \gamma$
4382.0 $\pm$ 13.3 $\pm$ 1.7		⁹ ABLIKIM	20O BES3	$e^+e^- \rightarrow \eta J/\psi$
4320.0 $\pm$ 10.4 $\pm$ 7.0		¹⁰ ABLIKIM	17B BES3	$e^+e^- \rightarrow \pi^+\pi^- J/\psi$
4383.8 $\pm$ 4.2 $\pm$ 0.8		¹¹ ABLIKIM	17V BES3	$e^+e^- \rightarrow \pi^+\pi^- \psi(2S)$
4383.7 $\pm$ 2.9 $\pm$ 6.2		¹² ZHANG	17B RVUE	$e^+e^- \rightarrow \pi^+\pi^- \psi(2S)$
4386.4 $\pm$ 2.1 $\pm$ 6.4		¹³ ZHANG	17C RVUE	$e^+e^- \rightarrow \pi^+\pi^- J/\psi$ or $\psi(2S)$
4355 $^{+9}_{-10} \pm$ 9	74	¹⁴ LIU	08H RVUE	10.58 $e^+e^- \rightarrow \gamma \pi^+\pi^- \psi(2S)$
4324 $\pm$ 24		¹⁵ AUBERT	07S BABR	10.58 $e^+e^- \rightarrow \gamma \pi^+\pi^- \psi(2S)$
4361 $\pm$ 9 $\pm$ 9	47	⁷ WANG	07D BELL	10.58 $e^+e^- \rightarrow \gamma \pi^+\pi^- \psi(2S)$

¹ From a three-resonance fit to the Born cross section in the range $\sqrt{s} = 3.808\text{--}4.951$ GeV. Supersedes ABLIKIM 200.² From a fit to the cross section for $e^+e^- \rightarrow D^+ D^- \pi^+ \pi^-$ in the range $\sqrt{s} = 4.190\text{--}4.946$ GeV.³ From a three-resonance fit to the Born cross section in the range $\sqrt{s} = 3.7730\text{--}4.7008$ GeV. Parameters depend on the existence or non-existence of a state near 4.5 GeV.⁴ From a three-resonance fit to the Born cross section in the range $\sqrt{s} = 4.008\text{--}4.698$ GeV.⁵ From a five-resonance fit to the cross section for $e^+e^- \rightarrow \gamma \gamma J/\psi \rightarrow \gamma \gamma \ell^+ \ell^-$.⁶ From a two-resonance fit. Supersedes WANG 07D.⁷ From a two-resonance fit.⁸ From a fit to the $e^+e^- \rightarrow \pi^+\pi^- \psi(3823)$ cross section between 4.23 and 4.70 GeV with two coherent Breit-Wigner resonances. The data is also consistent with a single peak with mass $4417.5 \pm 26.2 \pm 3.5$ MeV and width $245 \pm 48 \pm 13$ MeV.⁹ From a fit of the measured cross section in the range $\sqrt{s} = 3.808\text{--}4.600$ GeV.¹⁰ From a three-resonance fit. Superseded by ABLIKIM 22AM.¹¹ From a fit to the cross section for $e^+e^- \rightarrow \pi^+\pi^- \psi(2S) \rightarrow 2(\pi^+\pi^-) \ell^+ \ell^-$ obtained from 16 center-of-mass energies between 4.008 and 4.600 GeV and comprising 5.1 fb^{-1} . Superseded by ABLIKIM 21AJ.¹² From a three-resonance fit.

- 13 From a combined fit of BELLE, BABAR and BES3 $e^+e^- \rightarrow \pi^+\pi^- J/\psi$ and $e^+e^- \rightarrow \pi^+\pi^-\psi(2S)$ data.
14 From a combined fit of AUBERT 07S and WANG 07D data with two resonances.
15 From a single-resonance fit. Systematic errors not estimated.

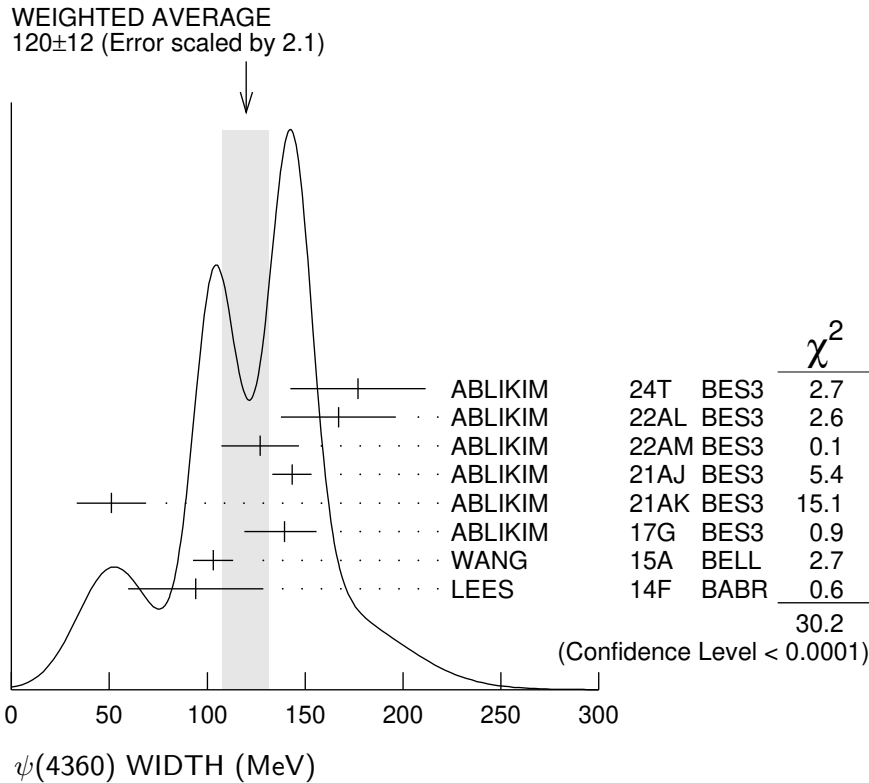


$\psi(4360)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
120 ±12 OUR AVERAGE		Error includes scale factor of 2.1. See the ideogram below.		
177 ±32 ±13		1 ABLIKIM	24T BES3	$e^+e^- \rightarrow \eta J/\psi$
167 ± 4 ±29		2 ABLIKIM	22AL BES3	$e^+e^- \rightarrow \pi^+\pi^- D^+ D^-$
127 ±17 ±10		3 ABLIKIM	22AMBES3	$e^+e^- \rightarrow \pi^+\pi^- J/\psi$
143.3±10.0± 0.5		4 ABLIKIM	21AJ BES3	$e^+e^- \rightarrow \pi^+\pi^-\psi(2S)$
51.1±17.6± 1.9		5 ABLIKIM	21AK BES3	$e^+e^- \rightarrow \gamma\chi_{c2} \rightarrow \gamma\gamma J/\psi$
139.5 ^{+16.2} _{-20.6} ± 0.6		ABLIKIM	17G BES3	$e^+e^- \rightarrow \pi^+\pi^- h_c$
103 ± 9 ± 5	279	6 WANG	15A BELL	10.58 $e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$
94 ±32 ±13	37	7 LEES	14F BABR	10.58 $e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
128.1±37.2± 2.3		8 ABLIKIM	22R BES3	$e^+e^- \rightarrow \pi^+\pi^-\chi_{c1}\gamma$
135.8±60.8±22.5		9 ABLIKIM	200 BES3	$e^+e^- \rightarrow \eta J/\psi$
101.4 ^{+25.3} _{-19.7} ±10.2		10 ABLIKIM	17B BES3	$e^+e^- \rightarrow \pi^+\pi^- J/\psi$
84.2±12.5± 2.1		11 ABLIKIM	17v BES3	$e^+e^- \rightarrow \pi^+\pi^-\psi(2S)$
94.2± 7.3± 2.0		12 ZHANG	17B RVUE	$e^+e^- \rightarrow \pi^+\pi^-\psi(2S)$

96.0 ± 6.7 ± 2.7	13	ZHANG	17C	RVUE	$e^+e^- \rightarrow \pi^+\pi^- J/\psi$ or $\psi(2S)$
103 $^{+17}_{-15}$ ± 11	74	14	LIU	08H	RVUE 10.58 $e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$
172 ± 33		15	AUBERT	07S	BABR 10.58 $e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$
74 ± 15 ± 10	47	7	WANG	07D	BELL 10.58 $e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$

- ¹ From a three-resonance fit to the Born cross section in the range $\sqrt{s} = 3.808\text{--}4.951$ GeV. Supersedes ABLIKIM 200.
- ² From a fit to the cross section for $e^+e^- \rightarrow D^+D^-\pi^+\pi^-$ in the range $\sqrt{s} = 4.190\text{--}4.946$ GeV.
- ³ From a three-resonance fit to the Born cross section in the range $\sqrt{s} = 3.7730\text{--}4.7008$ GeV. Parameters depend on the existence or non-existence of a state near 4.5 GeV.
- ⁴ From a three-resonance fit to the Born cross section in the range $\sqrt{s} = 4.008\text{--}4.698$ GeV.
- ⁵ From a five-resonance fit to the cross section for $e^+e^- \rightarrow \gamma\gamma J/\psi \rightarrow \gamma\gamma\ell^+\ell^-$.
- ⁶ From a two-resonance fit. Supersedes WANG 07D.
- ⁷ From a two-resonance fit.
- ⁸ From a fit to the $e^+e^- \rightarrow \pi^+\pi^-\psi(3823)$ cross section between 4.23 and 4.70 GeV with two coherent Breit-Wigner resonances. The data is also consistent with a single peak with mass $4417.5 \pm 26.2 \pm 3.5$ MeV and width $245 \pm 48 \pm 13$ MeV.
- ⁹ From a fit of the measured cross section in the range $\sqrt{s} = 3.808\text{--}4.600$ GeV.
- ¹⁰ From a three-resonance fit. Superseded by ABLIKIM 22AM.
- ¹¹ From a fit to the cross section for $e^+e^- \rightarrow \pi^+\pi^-\psi(2S) \rightarrow 2(\pi^+\pi^-)\ell^+\ell^-$ obtained from 16 center-of-mass energies between 4.008 and 4.600 GeV and comprising 5.1 fb^{-1} . Superseded by ABLIKIM 21AJ.
- ¹² From a three-resonance fit.
- ¹³ From a combined fit of BELLE, BABAR and BES3 $e^+e^- \rightarrow \pi^+\pi^- J/\psi$ and $e^+e^- \rightarrow \pi^+\pi^-\psi(2S)$ data.
- ¹⁴ From a combined fit of AUBERT 07S and WANG 07D data with two resonances.
- ¹⁵ From a single-resonance fit. Systematic errors not estimated.



$\psi(4360)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $e^+ e^-$	seen
Γ_2 $h_c \pi^+ \pi^-$	seen
Γ_3 $J/\psi \pi^+ \pi^-$	seen
Γ_4 $\psi(2S) \pi^+ \pi^-$	seen
Γ_5 $\psi(3770) \pi^+ \pi^-$	possibly seen
Γ_6 $\psi_2(3823) \pi^+ \pi^-$	seen
Γ_7 $J/\psi \eta$	seen
Γ_8 $D^0 D^{*-} \pi^+$	not seen
Γ_9 $D^+ D^- \pi^+ \pi^-$	seen
Γ_{10} $D_1(2420) \bar{D} + \text{c.c.}$	possibly seen
Γ_{11} $\phi \eta$	not seen
Γ_{12} $\omega \pi^0$	not seen
Γ_{13} $\omega \eta$	not seen
Γ_{14} $p \bar{p} \eta$	not seen
Γ_{15} $p \bar{p} \omega$	not seen
Γ_{16} $\chi_{c1} \gamma$	not seen
Γ_{17} $\chi_{c2} \gamma$	not seen
Γ_{18} $\Sigma^+ \bar{\Sigma}^-$	not seen
Γ_{19} $\Xi^0 \Xi^0$	
Γ_{20} $\Xi^- \Xi^+$	not seen
Γ_{21} $p K^- \bar{\Lambda} + \text{c.c.}$	not seen
Γ_{22} $\Lambda \Xi^+ K^- + \text{c.c.}$	not seen
Γ_{23} $\Sigma^0 \Xi^+ K^- + \text{c.c.}$	not seen

 $\psi(4360) \Gamma(i) \times \Gamma(e^+ e^-)/\Gamma(\text{total})$

$\Gamma(h_c \pi^+ \pi^-) \times \Gamma(e^+ e^-)/\Gamma_{\text{total}}$				$\Gamma_2 \Gamma_1/\Gamma$
VALUE (eV)	DOCUMENT ID	TECN	COMMENT	
$11.6^{+5.0}_{-4.4} \pm 1.9$	ABLIKIM	17G	BES3	$e^+ e^- \rightarrow \pi^+ \pi^- h_c$

$\Gamma(\psi(2S)\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$					$\Gamma_4\Gamma_1/\Gamma$
VALUE (eV)	EVTS	DOCUMENT ID	TECN	COMMENT	
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
10.7 ± 4.1		¹ ABLIKIM	21AJ BES3	$e^+e^- \rightarrow \pi^+\pi^-\psi(2S)$	
20.7 ± 2.5		² ABLIKIM	21AJ BES3	$e^+e^- \rightarrow \pi^+\pi^-\psi(2S)$	
9.9 ± 4.1		³ ABLIKIM	21AJ BES3	$e^+e^- \rightarrow \pi^+\pi^-\psi(2S)$	
19.4 ± 2.0		⁴ ABLIKIM	21AJ BES3	$e^+e^- \rightarrow \pi^+\pi^-\psi(2S)$	
7.3 ± 2.8		⁵ ABLIKIM	19K BES3	$e^+e^- \rightarrow \pi^+\pi^-\psi(2S)$	
11.0 ± 3.8		⁶ ABLIKIM	19K BES3	$e^+e^- \rightarrow \pi^+\pi^-\psi(2S)$	
$9.2 \pm 0.6 \pm 0.6$	279	⁷ WANG	15A BELL	$10.58 e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$	
$10.9 \pm 0.6 \pm 0.7$	279	⁸ WANG	15A BELL	$10.58 e^+e^- \rightarrow \gamma\pi^+\pi^-\psi(2S)$	

$6.0 \pm 1.0 \pm 0.5$	37	⁵ LEES	14F	BABR	$10.58 \text{ e}^+ \text{ e}^- \rightarrow \gamma \pi^+ \pi^- \psi(2S)$
$7.2 \pm 1.0 \pm 0.6$	37	⁶ LEES	14F	BABR	$10.58 \text{ e}^+ \text{ e}^- \rightarrow \gamma \pi^+ \pi^- \psi(2S)$
$11.1^{+1.3}_{-1.2}$	74	⁹ LIU	08H	RVUE	$10.58 \text{ e}^+ \text{ e}^- \rightarrow \gamma \pi^+ \pi^- \psi(2S)$
12.3 ± 1.2	74	¹⁰ LIU	08H	RVUE	$10.58 \text{ e}^+ \text{ e}^- \rightarrow \gamma \pi^+ \pi^- \psi(2S)$
$10.4 \pm 1.7 \pm 1.5$	47	⁵ WANG	07D	BELL	$10.58 \text{ e}^+ \text{ e}^- \rightarrow \gamma \pi^+ \pi^- \psi(2S)$
$11.8 \pm 1.8 \pm 1.4$	47	⁶ WANG	07D	BELL	$10.58 \text{ e}^+ \text{ e}^- \rightarrow \gamma \pi^+ \pi^- \psi(2S)$

¹ Solution I of four equivalent solutions in a fit using three interfering resonances. Supersedes ABLIKIM 19K.

² Solution II of four equivalent solutions in a fit using three interfering resonances. Supersedes ABLIKIM 19K.

³ Solution III of four equivalent solutions in a fit using three interfering resonances. Supersedes ABLIKIM 19K.

⁴ Solution IV of four equivalent solutions in a fit using three interfering resonances. Supersedes ABLIKIM 19K.

⁵ Solution I of two equivalent solutions in a fit using two interfering resonances.

⁶ Solution II of two equivalent solutions in a fit using two interfering resonances.

⁷ Solution I of two equivalent solutions from a fit using two interfering resonances. Supersedes WANG 07D.

⁸ Solution II of two equivalent solutions from a fit using two interfering resonances. Supersedes WANG 07D.

⁹ Solution I in a combined fit of AUBERT 07S and WANG 07D data with two resonances.

¹⁰ Solution II in a combined fit of AUBERT 07S and WANG 07D data with two resonances.

$\Gamma(J/\psi\eta) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_7\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
$1.8 \pm 0.6 \pm 0.3$		¹ ABLIKIM	24T	BES3 $e^+e^- \rightarrow \eta J/\psi$
$2.1 \pm 0.7 \pm 0.3$		² ABLIKIM	24T	BES3 $e^+e^- \rightarrow \eta J/\psi$
$4.3 \pm 1.3 \pm 0.5$		³ ABLIKIM	24T	BES3 $e^+e^- \rightarrow \eta J/\psi$
$5.0 \pm 1.5 \pm 0.5$		⁴ ABLIKIM	24T	BES3 $e^+e^- \rightarrow \eta J/\psi$
3.4 ± 2.2		⁵ ABLIKIM	200	BES3 $e^+e^- \rightarrow \eta J/\psi$
1.5 ± 1.0		⁶ ABLIKIM	200	BES3 $e^+e^- \rightarrow \eta J/\psi$
1.7 ± 1.1		⁷ ABLIKIM	200	BES3 $e^+e^- \rightarrow \eta J/\psi$
<6.8	90	WANG	13B	BELL $e^+e^- \rightarrow J/\psi\eta\gamma$

¹ Solution 1 of 4. Supersedes ABLIKIM 200.

² Solution 2 of 4. Supersedes ABLIKIM 200.

³ Solution 3 of 4. Supersedes ABLIKIM 200.

⁴ Solution 4 of 4. Supersedes ABLIKIM 200.

⁵ Solution 1 of three equivalent fit solutions using three resonant structures.

⁶ Solution 2 of three equivalent fit solutions using three resonant structures.

⁷ Solution 3 of three equivalent fit solutions using three resonant structures.

$\Gamma(\chi_{c1}\gamma) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{16}\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
<0.57	90	¹ HAN	15	BELL $10.58 \text{ e}^+ \text{ e}^- \rightarrow \chi_{c1}\gamma$

¹ Using $B(\eta \rightarrow \gamma\gamma) = (39.41 \pm 0.21)\%$.

$\Gamma(\chi_{c2}\gamma) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{17}\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
<1.9	90	¹ HAN	15	BELL $10.58 \text{ e}^+ \text{ e}^- \rightarrow \chi_{c2}\gamma$

¹ Using $B(\eta \rightarrow \gamma\gamma) = (39.41 \pm 0.21)\%$.

$$\Gamma(\Sigma^+\bar{\Sigma}^-) \times \Gamma(e^+e^-)/\Gamma_{\text{total}} \quad \Gamma_{18}\Gamma_1/\Gamma$$

VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
$<118.8 \times 10^{-3}$	90	¹ ABLIKIM	24AH BES3	$e^+e^- \rightarrow \Sigma^+\bar{\Sigma}^-$

¹ Interference effect between resonance and continuum amplitudes is considered. Two solutions from the fit.

$$\Gamma(\Xi^0\bar{\Xi}^0) \times \Gamma(e^+e^-)/\Gamma_{\text{total}} \quad \Gamma_{19}\Gamma_1/\Gamma$$

VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
$<84.5 \times 10^{-3}$	90	¹ ABLIKIM	24CD BES3	$e^+e^- \rightarrow \psi(4360)$

¹ From a fit to $e^+e^- \rightarrow \Xi^0\bar{\Xi}^0$ cross sections.

$$\Gamma(\Xi^-\bar{\Xi}^+) \times \Gamma(e^+e^-)/\Gamma_{\text{total}} \quad \Gamma_{20}\Gamma_1/\Gamma$$

VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
$<44.8 \times 10^{-3}$	90	¹ ABLIKIM	23BK BES3	$e^+e^- \rightarrow \psi(4360)$

¹ From a fit to $e^+e^- \rightarrow \Xi^-\bar{\Xi}^+$ cross sections.

$$\Gamma(pK^-\bar{\Lambda} + \text{c.c.}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}} \quad \Gamma_{21}\Gamma_1/\Gamma$$

VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
$<4.7 \times 10^{-3}$	90	¹ ABLIKIM	23BL BES3	$e^+e^- \rightarrow \psi(4360)$

¹ From a fit to $e^+e^- \rightarrow pK^-\bar{\Lambda} + \text{c.c.}$ cross sections.

$$\Gamma(\Lambda\bar{\Xi}^+K^- + \text{c.c.}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}} \quad \Gamma_{22}\Gamma_1/\Gamma$$

VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
$<35.8 \times 10^{-3}$	90	¹ ABLIKIM	24AL BES3	$e^+e^- \rightarrow \Lambda\bar{\Xi}^+K^- + \text{c.c.}$

¹ A fit to the Born cross section of $e^+e^- \rightarrow \Lambda\bar{\Xi}^+K^- + \text{c.c.}$ including interference with the continuum. Two solutions from the fit.

$$\Gamma(\Sigma^0\bar{\Xi}^+K^- + \text{c.c.}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}} \quad \Gamma_{23}\Gamma_1/\Gamma$$

VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
$<2.8 \times 10^{-3}$	90	¹ ABLIKIM	24AL BES3	$e^+e^- \rightarrow \Sigma^0\bar{\Xi}^+K^- + \text{c.c.}$

¹ A fit to the Born cross section of $e^+e^- \rightarrow \Sigma^0\bar{\Xi}^+K^- + \text{c.c.}$ including interference with the continuum. Two solutions from the fit.

$\psi(4360)$ BRANCHING RATIOS

$$\Gamma(h_c\pi^+\pi^-)/\Gamma_{\text{total}} \quad \Gamma_2/\Gamma$$

VALUE	DOCUMENT ID	TECN	COMMENT
seen	ABLIKIM	17G BES3	$e^+e^- \rightarrow \pi^+\pi^-h_c$

$$\Gamma(\psi(2S)\pi^+\pi^-)/\Gamma_{\text{total}} \quad \Gamma_4/\Gamma$$

VALUE	DOCUMENT ID	TECN	COMMENT
seen	¹ ABLIKIM	17V BES3	$e^+e^- \rightarrow \pi^+\pi^-\psi(2S)$

¹ From a fit to the cross section for $e^+e^- \rightarrow \pi^+\pi^-\psi(2S) \rightarrow 2(\pi^+\pi^-)\ell^+\ell^-$ obtained from 16 center-of-mass energies between 4.008 and 4.600 GeV and comprising 5.1 fb^{-1} .

$\Gamma(\psi(2S)\pi^+\pi^-)/\Gamma(J/\psi\pi^+\pi^-)$ Γ_4/Γ_3

VALUE	DOCUMENT ID	TECN	COMMENT
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• • • We do not use the following data for averages, fits, limits, etc. • • •

(0.81 ± 0.12 ± 0.13) to (42 ± 15 ± 15) ¹ ZHANG 17C RVUE $e^+e^- \rightarrow \pi^+\pi^- J/\psi$ or $\psi(2S)$

¹ From a combined fit of BELLE, BABAR and BES3 $e^+e^- \rightarrow \pi^+\pi^- J/\psi$ and $e^+e^- \rightarrow \pi^+\pi^- \psi(2S)$ data.

 $\Gamma(\psi(3770)\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_5/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
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possibly seen

¹ ABLIKIM 19AR BES3 $e^+e^- \rightarrow \pi^+\pi^- D\bar{D}$

¹ Observe $e^+e^- \rightarrow \pi^+\pi^- \psi(3770)$ at $\sqrt{s} = 4.26, 4.36$, and 4.42 GeV but cannot establish if continuum or resonant.

 $\Gamma(\psi_2(3823)\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_6/Γ

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
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seen

¹ ABLIKIM 22R BES3 $e^+e^- \rightarrow \pi^+\pi^- \chi_{c1}\gamma$

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

possibly seen 19 ² ABLIKIM 15S BES3 $e^+e^- \rightarrow \pi^+\pi^- \chi_{c1}\gamma$

¹ From a fit to the $e^+e^- \rightarrow \pi^+\pi^- \psi(3823)$ cross section between 4.23 and 4.70 GeV with two coherent Breit-Wigner resonances.

² From a fit of $e^+e^- \rightarrow \pi^+\pi^- \psi_2(3823)$, $\psi_2(3823) \rightarrow \chi_{c1}\gamma$ cross sections taken at $\sqrt{s}$ values of $4.23, 4.26, 4.36, 4.42$, and 4.60 GeV to the $\psi(4360)$ line shape.

 $\Gamma(J/\psi\eta)/\Gamma_{\text{total}}$ Γ_7/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
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seen

¹ ABLIKIM 24T BES3 $e^+e^- \rightarrow \eta J/\psi$

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

seen ² ABLIKIM 200 BES3 $e^+e^- \rightarrow \eta J/\psi$

¹ Supersedes ABLIKIM 200.

² With a significance of 6.0σ .

 $\Gamma(D^0 D^{*-}\pi^+)/\Gamma_{\text{total}} \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_8/\Gamma \times \Gamma_1/\Gamma$

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
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$<0.72 \times 10^{-6}$ 90 ¹ PAKHLOVA 09 BELL $e^+e^- \rightarrow \psi(4360) \rightarrow D^0 D^{*-}\pi^+$

¹ Using $4355^{+9}_{-10} \pm 9$ MeV for the mass of $\psi(4360)$.

 $\Gamma(D^0 D^{*-}\pi^+)/\Gamma(\psi(2S)\pi^+\pi^-)$ Γ_8/Γ_4

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
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<8 90 PAKHLOVA 09 BELL $e^+e^- \rightarrow \psi(4360) \rightarrow D^0 D^{*-}\pi^+$

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

VALUE	DOCUMENT ID	TECN	COMMENT
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seen

¹ ABLIKIM 22AL BES3 $e^+e^- \rightarrow \pi^+\pi^- D^+ D^-$

¹ From a fit to the cross section for $e^+e^- \rightarrow D^+ D^- \pi^+ \pi^-$ in the range $\sqrt{s} = 4.190\text{--}4.946$ GeV.

$\Gamma(D_1(2420)\bar{D} + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{10}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
possibly seen	¹ ABLIKIM	19AR BES3	$e^+e^- \rightarrow \pi^+\pi^- D\bar{D}$
¹ Evidence for $e^+e^- \rightarrow D_1(2420)\bar{D} + \text{c.c.}$ between $\sqrt{s} = 4.3$ and 4.6 GeV, not necessarily resonant.			

 $\Gamma(\phi\eta)/\Gamma_{\text{total}}$ Γ_{11}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
not seen	ABLIKIM	23BT BES3	$e^+e^- \rightarrow \phi\eta$

 $\Gamma(\omega\pi^0)/\Gamma_{\text{total}}$ Γ_{12}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
not seen	ABLIKIM	22K BES3	$e^+e^- \rightarrow \omega\pi^0$

 $\Gamma(\omega\eta)/\Gamma_{\text{total}}$ Γ_{13}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
not seen	ABLIKIM	22K BES3	$e^+e^- \rightarrow \omega\eta$

 $\Gamma(p\bar{p}\eta)/\Gamma_{\text{total}}$ Γ_{14}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
not seen	ABLIKIM	21AN BES3	$e^+e^- \rightarrow p\bar{p}\eta$

 $\Gamma(p\bar{p}\omega)/\Gamma_{\text{total}}$ Γ_{15}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
not seen	ABLIKIM	21AN BES3	$e^+e^- \rightarrow p\bar{p}\omega$

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