NODE=M181

$\psi(4360)$

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

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." NODE=M181

$\psi(4360)$ MASS NODE=M181M

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

[1] From a three-resonance fit to the Born cross section in the range $\sqrt{s}$ = 3.808–4.951 GeV. Supersedes ABLIKIM 20O. NODE=M181M;LINKAGE=N

[2] From a fit to the cross section for $e^+e^- \to D^+D^-\pi^+\pi^-$ in the range $\sqrt{s}$ = 4.190–4.946 GeV. NODE=M181M;LINKAGE=M

[3] From a three-resonance fit to the Born cross section in the range $\sqrt{s}$ = 3.7730–4.7008 GeV. Parameters depend on the existence or non-existence of a state near 4.5 GeV. NODE=M181M;LINKAGE=L

[4] From a three-resonance fit to the Born cross section in the range $\sqrt{s}$ = 4.008–4.698 GeV. NODE=M181M;LINKAGE=H

[5] From a five-resonance fit to the cross section for $e^+e^- \to \gamma\gamma J/\psi \to \gamma\gamma\ell^+\ell^-$. NODE=M181M;LINKAGE=G

[6] From a two-resonance fit. Supersedes WANG 07D. NODE=M181M;LINKAGE=A

[7] From a two-resonance fit. NODE=M181M;LINKAGE=WA

[8] From a fit to the $e^+e^- \to \pi^+\pi^-\psi(3823)$ 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 ± 26.2 ± 3.5 MeV and width 245 ± 48 ± 13 MeV. NODE=M181M;LINKAGE=J

[9] From a fit of the measured cross section in the range $\sqrt{s}$ = 3.808–4.600 GeV. NODE=M181M;LINKAGE=BA

[10] From a three-resonance fit. Superseded by ABLIKIM 22AM. NODE=M181M;LINKAGE=K

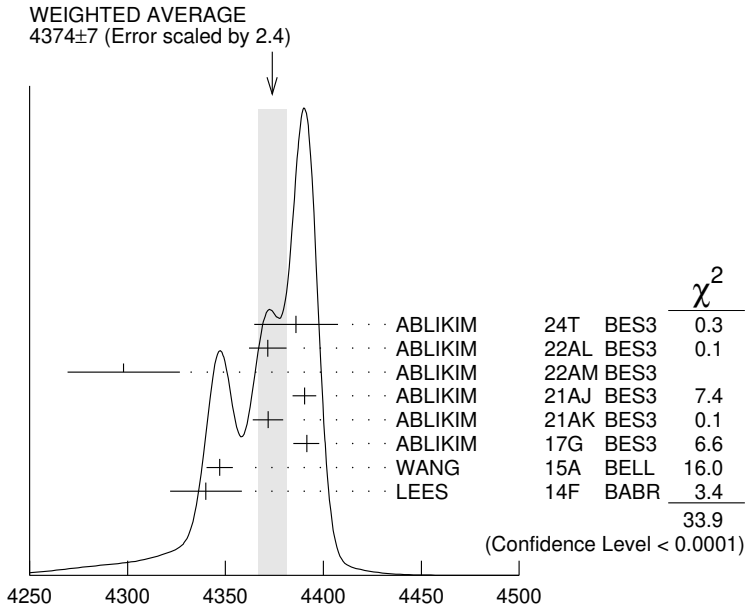
[11] From a fit to the cross section for $e^+e^- \to \pi^+\pi^-\psi(2S) \to 2(\pi^+\pi^-)\ell^+\ell^-$ obtained from 16 center-of-mass energies between 4.008 and 4.600 GeV and comprising 5.1 fb^{-1}. Superseded by ABLIKIM 21AJ. NODE=M181M;LINKAGE=C

[12] From a three-resonance fit. NODE=M181M;LINKAGE=E

[13] From a combined fit of BELLE, BABAR and BES3 $e^+e^- \to \pi^+\pi^- J/\psi$ and $e^+e^- \to \pi^+\pi^-\psi(2S)$ data. NODE=M181M;LINKAGE=D

[14] From a combined fit of AUBERT 07S and WANG 07D data with two resonances. NODE=M181M;LINKAGE=LI

[15] From a single-resonance fit. Systematic errors not estimated. NODE=M181M;LINKAGE=AU



ψ(4360) WIDTH

NODE=M181W

NODE=M181W

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	$e^+e^- \to \eta J/\psi$
167 ± 4 ±29		[2] ABLIKIM	22AL	BES3	$e^+e^- \to \pi^+\pi^- D^+ D^-$
127 ±17 ±10		[3] ABLIKIM	22AM	BES3	$e^+e^- \to \pi^+\pi^- J/\psi$
143.3±10.0± 0.5		[4] ABLIKIM	21AJ	BES3	$e^+e^- \to \pi^+\pi^- \psi(2S)$
51.1±17.6± 1.9		[5] ABLIKIM	21AK	BES3	$e^+e^- \to \gamma\chi_{c2} \to \gamma\gamma J/\psi$
$139.5^{+16.2}_{-20.6}$± 0.6		ABLIKIM	17G	BES3	$e^+e^- \to \pi^+\pi^- h_c$
103 ± 9 ± 5	279	[6] WANG	15A	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
94 ±32 ±13	37	[7] LEES	14F	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
128.1±37.2± 2.3		[8] ABLIKIM	22R	BES3	$e^+e^- \to \pi^+\pi^-\chi_{c1}\gamma$
135.8±60.8±22.5		[9] ABLIKIM	20O	BES3	$e^+e^- \to \eta J/\psi$
$101.4^{+25.3}_{-19.7}$±10.2		[10] ABLIKIM	17B	BES3	$e^+e^- \to \pi^+\pi^- J/\psi$
84.2±12.5± 2.1		[11] ABLIKIM	17V	BES3	$e^+e^- \to \pi^+\pi^-\psi(2S)$
94.2± 7.3± 2.0		[12] ZHANG	17B	RVUE	$e^+e^- \to \pi^+\pi^-\psi(2S)$
96.0± 6.7± 2.7		[13] ZHANG	17C	RVUE	$e^+e^- \to \pi^+\pi^- J/\psi$ or $\psi(2S)$
$103\ ^{+17}_{-15}$ ±11	74	[14] LIU	08H	RVUE	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
172 ±33		[15] AUBERT	07S	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
74 ±15 ±10	47	[7] WANG	07D	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$

[1] From a three-resonance fit to the Born cross section in the range $\sqrt{s}$ = 3.808–4.951 GeV. Supersedes ABLIKIM 20O. NODE=M181W;LINKAGE=M

[2] From a fit to the cross section for $e^+e^- \to D^+D^-\pi^+\pi^-$ in the range $\sqrt{s}$ = 4.190–4.946 GeV. NODE=M181W;LINKAGE=L

[3] From a three-resonance fit to the Born cross section in the range $\sqrt{s}$ = 3.7730–4.7008 GeV. Parameters depend on the existence or non-existence of a state near 4.5 GeV. NODE=M181W;LINKAGE=K

[4] From a three-resonance fit to the Born cross section in the range $\sqrt{s}$ = 4.008–4.698 GeV. NODE=M181W;LINKAGE=G

[5] From a five-resonance fit to the cross section for $e^+e^- \to \gamma\gamma J/\psi \to \gamma\gamma\ell^+\ell^-$. NODE=M181W;LINKAGE=F

[6] From a two-resonance fit. Supersedes WANG 07D. NODE=M181W;LINKAGE=A

[7] From a two-resonance fit. NODE=M181W;LINKAGE=WA

[8] From a fit to the $e^+e^- \to \pi^+\pi^-\psi(3823)$ 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 ± 26.2 ± 3.5 MeV and width 245 ± 48 ± 13 MeV. NODE=M181W;LINKAGE=I

[9] From a fit of the measured cross section in the range $\sqrt{s}$ = 3.808–4.600 GeV. NODE=M181W;LINKAGE=BA

[10] From a three-resonance fit. Superseded by ABLIKIM 22AM. NODE=M181W;LINKAGE=J

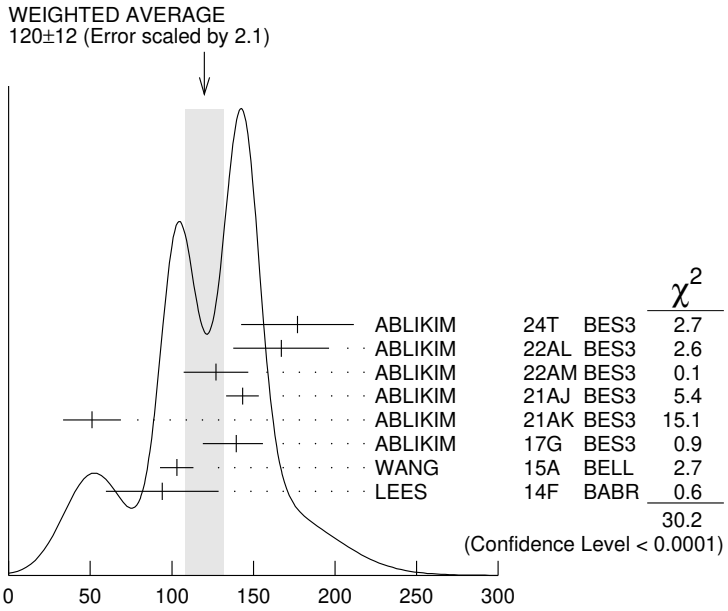
[11] From a fit to the cross section for $e^+e^- \to \pi^+\pi^-\psi(2S) \to 2(\pi^+\pi^-)\ell^+\ell^-$ obtained from 16 center-of-mass energies between 4.008 and 4.600 GeV and comprising 5.1 fb^{-1}. Superseded by ABLIKIM 21AJ. NODE=M181W;LINKAGE=C

[12] From a three-resonance fit. NODE=M181W;LINKAGE=E

[13] From a combined fit of BELLE, BABAR and BES3 $e^+e^- \to \pi^+\pi^- J/\psi$ and $e^+e^- \to \pi^+\pi^-\psi(2S)$ data. NODE=M181W;LINKAGE=D

[14] From a combined fit of AUBERT 07S and WANG 07D data with two resonances. NODE=M181W;LINKAGE=LI

[15] From a single-resonance fit. Systematic errors not estimated. NODE=M181W;LINKAGE=AU



$\psi(4360)$ DECAY MODES

NODE=M181215;NODE=M181

	Mode	Fraction (Γ_i/Γ)	
Γ_1	e^+e^-	seen	DESIG=1;OUR EVAL;→ UNCHECKED ←
Γ_2	$h_c\pi^+\pi^-$	seen	DESIG=12
Γ_3	$J/\psi\pi^+\pi^-$	seen	DESIG=8;OUR EVAL;→ UNCHECKED ←
Γ_4	$\psi(2S)\pi^+\pi^-$	seen	DESIG=2
Γ_5	$\psi(3770)\pi^+\pi^-$	possibly seen	DESIG=11
Γ_6	$\psi_2(3823)\pi^+\pi^-$	seen	DESIG=5
Γ_7	$J/\psi\eta$	seen	DESIG=4
Γ_8	$D^0D^{*-}\pi^+$	not seen	DESIG=3;OUR EVAL;→ UNCHECKED ←
Γ_9	$D^+D^-\pi^+\pi^-$	seen	DESIG=17
Γ_{10}	$D_1(2420)\overline{D}+$ c.c.	possibly seen	DESIG=10
Γ_{11}	$\phi\eta$	not seen	DESIG=20
Γ_{12}	$\omega\pi^0$	not seen	DESIG=15
Γ_{13}	$\omega\eta$	not seen	DESIG=16
Γ_{14}	$p\overline{p}\eta$	not seen	DESIG=13
Γ_{15}	$p\overline{p}\omega$	not seen	DESIG=14
Γ_{16}	$\chi_{c1}\gamma$	not seen	DESIG=6;OUR EVAL;→ UNCHECKED ←
Γ_{17}	$\chi_{c2}\gamma$	not seen	DESIG=7;OUR EVAL;→ UNCHECKED ←
Γ_{18}	$\Sigma^+\overline{\Sigma}^-$	not seen	DESIG=21;OUR EVAL;→ UNCHECKED ←
Γ_{19}	$\Xi^0\overline{\Xi}^0$		DESIG=24
Γ_{20}	$\Xi^-\overline{\Xi}^+$	not seen	DESIG=18;OUR EVAL;→ UNCHECKED ←
Γ_{21}	$pK^-\overline{\Lambda}+$ c.c.	not seen	DESIG=19;OUR EVAL;→ UNCHECKED ←
Γ_{22}	$\Lambda\overline{\Xi}^+K^-+$ c.c.	not seen	DESIG=22;OUR EVAL;→ UNCHECKED ←
Γ_{23}	$\Sigma^0\overline{\Xi}^+K^-+$ c.c.	not seen	DESIG=23;OUR EVAL;→ UNCHECKED ←

$\psi(4360)$ Γ(i) × $\Gamma(e^+e^-)/\Gamma$(total)

NODE=M181230

$\Gamma(h_c\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ **$\Gamma_2\Gamma_1/\Gamma$**

NODE=M181R11

VALUE (eV)	*DOCUMENT ID*		*TECN*	*COMMENT*
$11.6^{+5.0}_{-4.4}\pm1.9$	ABLIKIM	17G	BES3	$e^+e^- \to \pi^+\pi^- h_c$

NODE=M181R11

$\Gamma(\psi(2S)\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ — $\Gamma_4\Gamma_1/\Gamma$

NODE=M181G1
NODE=M181G1

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	$e^+e^- \to \pi^+\pi^-\psi(2S)$
20.7±2.5		[2] ABLIKIM	21AJ	BES3	$e^+e^- \to \pi^+\pi^-\psi(2S)$ OCCUR=2
9.9±4.1		[3] ABLIKIM	21AJ	BES3	$e^+e^- \to \pi^+\pi^-\psi(2S)$ OCCUR=3
19.4±2.0		[4] ABLIKIM	21AJ	BES3	$e^+e^- \to \pi^+\pi^-\psi(2S)$ OCCUR=4
7.3±2.8		[5] ABLIKIM	19K	BES3	$e^+e^- \to \pi^+\pi^-\psi(2S)$
11.0±3.8		[6] ABLIKIM	19K	BES3	$e^+e^- \to \pi^+\pi^-\psi(2S)$ OCCUR=2
9.2±0.6±0.6	279	[7] WANG	15A	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
10.9±0.6±0.7	279	[8] WANG	15A	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$ OCCUR=2
6.0±1.0±0.5	37	[5] LEES	14F	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
7.2±1.0±0.6	37	[6] LEES	14F	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$ OCCUR=2
$11.1^{+1.3}_{-1.2}$	74	[9] LIU	08H	RVUE	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
12.3±1.2	74	[10] LIU	08H	RVUE	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$ OCCUR=2
10.4±1.7±1.5	47	[5] WANG	07D	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
11.8±1.8±1.4	47	[6] WANG	07D	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$ OCCUR=2

[1] Solution I of four equivalent solutions in a fit using three interfering resonances. Supersedes ABLIKIM 19K. NODE=M181G1;LINKAGE=E
[2] Solution II of four equivalent solutions in a fit using three interfering resonances. Supersedes ABLIKIM 19K. NODE=M181G1;LINKAGE=F
[3] Solution III of four equivalent solutions in a fit using three interfering resonances. Supersedes ABLIKIM 19K. NODE=M181G1;LINKAGE=G
[4] Solution IV of four equivalent solutions in a fit using three interfering resonances. Supersedes ABLIKIM 19K. NODE=M181G1;LINKAGE=H
[5] Solution I of two equivalent solutions in a fit using two interfering resonances. NODE=M181G1;LINKAGE=WA
[6] Solution II of two equivalent solutions in a fit using two interfering resonances. NODE=M181G1;LINKAGE=WN
[7] Solution I of two equivalent solutions from a fit using two interfering resonances. Supersedes WANG 07D. NODE=M181G1;LINKAGE=A
[8] Solution II of two equivalent solutions from a fit using two interfering resonances. Supersedes WANG 07D. NODE=M181G1;LINKAGE=B
[9] Solution I in a combined fit of AUBERT 07S and WANG 07D data with two resonances. NODE=M181G1;LINKAGE=LI
[10] Solution II in a combined fit of AUBERT 07S and WANG 07D data with two resonances. NODE=M181G1;LINKAGE=LU

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

NODE=M181G01
NODE=M181G01

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.8±0.6±0.3		[1] ABLIKIM	24T	BES3	$e^+e^- \to \eta J/\psi$
2.1±0.7±0.3		[2] ABLIKIM	24T	BES3	$e^+e^- \to \eta J/\psi$ OCCUR=2
4.3±1.3±0.5		[3] ABLIKIM	24T	BES3	$e^+e^- \to \eta J/\psi$ OCCUR=3
5.0±1.5±0.5		[4] ABLIKIM	24T	BES3	$e^+e^- \to \eta J/\psi$ OCCUR=4
3.4±2.2		[5] ABLIKIM	20O	BES3	$e^+e^- \to \eta J/\psi$
1.5±1.0		[6] ABLIKIM	20O	BES3	$e^+e^- \to \eta J/\psi$ OCCUR=2
1.7±1.1		[7] ABLIKIM	20O	BES3	$e^+e^- \to \eta J/\psi$ OCCUR=3
<6.8	90	WANG	13B	BELL	$e^+e^- \to J/\psi\eta\gamma$

[1] Solution 1 of 4. Supersedes ABLIKIM 20O. NODE=M181G01;LINKAGE=D
[2] Solution 2 of 4. Supersedes ABLIKIM 20O. NODE=M181G01;LINKAGE=E
[3] Solution 3 of 4. Supersedes ABLIKIM 20O. NODE=M181G01;LINKAGE=F
[4] Solution 4 of 4. Supersedes ABLIKIM 20O. NODE=M181G01;LINKAGE=G
[5] Solution 1 of three equivalent fit solutions using three resonant structures. NODE=M181G01;LINKAGE=A
[6] Solution 2 of three equivalent fit solutions using three resonant structures. NODE=M181G01;LINKAGE=B
[7] Solution 3 of three equivalent fit solutions using three resonant structures. NODE=M181G01;LINKAGE=C

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

NODE=M181G02
NODE=M181G02

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

[1] Using B($\eta \to \gamma\gamma$) = (39.41 ± 0.21)%. NODE=M181G02;LINKAGE=A

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

NODE=M181G03
NODE=M181G03

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

[1] Using B($\eta \to \gamma\gamma$) = (39.41 ± 0.21)%. NODE=M181G03;LINKAGE=A

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

NODE=M181R19
NODE=M181R19

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

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

NODE=M181R19;LINKAGE=A

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

NODE=M181R22
NODE=M181R22

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

[1] From a fit to $e^+e^- \to \Xi^0\overline{\Xi}^0$ cross sections.

NODE=M181R22;LINKAGE=A

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

NODE=M181R15
NODE=M181R15

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

[1] From a fit to $e^+e^- \to \Xi^-\overline{\Xi}^+$ cross sections.

NODE=M181R15;LINKAGE=A

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

NODE=M181R17
NODE=M181R17

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

[1] From a fit to $e^+e^- \to pK^-\overline{\Lambda}+$ c.c. cross sections.

NODE=M181R17;LINKAGE=A

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

NODE=M181R20
NODE=M181R20

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

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

NODE=M181R20;LINKAGE=A

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

NODE=M181R21
NODE=M181R21

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

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

NODE=M181R21;LINKAGE=A

$\psi(4360)$ BRANCHING RATIOS

NODE=M181225

$\Gamma(h_c\pi^+\pi^-)/\Gamma_{total}$ Γ_2/Γ

NODE=M181R08
NODE=M181R08

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

$\Gamma(\psi(2S)\pi^+\pi^-)/\Gamma_{total}$ Γ_4/Γ

NODE=M181R00
NODE=M181R00

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

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

NODE=M181R00;LINKAGE=A

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

NODE=M181R04
NODE=M181R04

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$(0.81 \pm 0.12 \pm 0.13)$ to $(42 \pm 15 \pm 15)$	[1] ZHANG	17C	RVUE	$e^+e^- \to \pi^+\pi^- J/\psi$ or $\psi(2S)$

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

NODE=M181R04;LINKAGE=A

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

NODE=M181R06
NODE=M181R06

VALUE	DOCUMENT ID		TECN	COMMENT
possibly seen	[1] ABLIKIM	19AR	BES3	$e^+e^- \to \pi^+\pi^- D\overline{D}$

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

NODE=M181R06;LINKAGE=A

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

NODE=M181R03
NODE=M181R03

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
seen		[1] ABLIKIM	22R	BES3	$e^+e^- \to \pi^+\pi^-\chi_{c1}\gamma$

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

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

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

NODE=M181R03;LINKAGE=C

[2] From a fit of $e^+e^- \to \pi^+\pi^-\psi_2(3823)$, $\psi_2(3823) \to \chi_{c1}\gamma$ 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.

NODE=M181R03;LINKAGE=A

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

NODE=M181R07
NODE=M181R07

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[1] ABLIKIM	24T	BES3	$e^+e^- \to \eta J/\psi$

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

seen	[2] ABLIKIM	20O	BES3	$e^+e^- \to \eta J/\psi$

[1] Supersedes ABLIKIM 20O.

NODE=M181R07;LINKAGE=B

[2] With a significance of 6.0 σ.

NODE=M181R07;LINKAGE=A

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

NODE=M181R02
NODE=M181R02

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

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

NODE=M181R02;LINKAGE=PA

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

NODE=M181R01
NODE=M181R01

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

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

NODE=M181R14
NODE=M181R14

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[1] ABLIKIM	22AL	BES3	$e^+e^- \to \pi^+\pi^- D^+D^-$

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

NODE=M181R14;LINKAGE=A

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

NODE=M181R05
NODE=M181R05

VALUE	DOCUMENT ID		TECN	COMMENT
possibly seen	[1] ABLIKIM	19AR	BES3	$e^+e^- \to \pi^+\pi^- D\overline{D}$

[1] Evidence for $e^+e^- \to D_1(2420)\overline{D}+$ c.c. between $\sqrt{s} = 4.3$ and 4.6 GeV, not necessarily resonant.

NODE=M181R05;LINKAGE=A

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

NODE=M181R18
NODE=M181R18

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

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

NODE=M181R12
NODE=M181R12

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

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

NODE=M181R13
NODE=M181R13

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

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

NODE=M181R09
NODE=M181R09

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

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

NODE=M181R10
NODE=M181R10

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

ψ(4360) REFERENCES

NODE=M181

ABLIKIM	24AH	JHEP 2405 022	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62688
ABLIKIM	24AL	JHEP 2407 258	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62693
ABLIKIM	24CD	JHEP 2411 062	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63037
ABLIKIM	24T	PR D109 092012	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62671
ABLIKIM	23BK	JHEP 2311 228	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62437
ABLIKIM	23BL	JHEP 2312 027	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62438
ABLIKIM	23BT	PR D108 112011	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62516
ABLIKIM	22AL	PR D106 052012	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61884
ABLIKIM	22AM	PR D106 072001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61885
ABLIKIM	22K	JHEP 2207 064	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61648
ABLIKIM	22R	PRL 129 102003	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61664
ABLIKIM	21AJ	PR D104 052012	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61441
ABLIKIM	21AK	PR D104 092001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61443
ABLIKIM	21AN	PR D104 092008	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61446
ABLIKIM	20O	PR D102 031101	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60344
ABLIKIM	19AR	PR D100 032005	M. Ablikim *et al.*	(BESIII Collab.)	REFID=59910
ABLIKIM	19K	PR D99 019903 (errat.)	M. Ablikim *et al.*	(BESIII Collab.)	REFID=59611
ABLIKIM	17B	PRL 118 092001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=57755
ABLIKIM	17G	PRL 118 092002	M. Ablikim *et al.*	(BESIII Collab.)	REFID=57915
ABLIKIM	17V	PR D96 032004	M. Ablikim *et al.*	(BESIII Collab.)	REFID=58029
Also		PR D99 019903 (errat.)	M. Ablikim *et al.*	(BESIII Collab.)	REFID=59611
ZHANG	17B	PR D96 054008	J. Zhang, J. Zhang		REFID=58219
ZHANG	17C	EPJ C77 727	J. Zhang, L. Yuan		REFID=58463
ABLIKIM	15S	PRL 115 011803	M. Ablikim *et al.*	(BESIII Collab.)	REFID=56784
HAN	15	PR D92 012011	Y.L. Han *et al.*	(BELLE Collab.)	REFID=56816
WANG	15A	PR D91 112007	X.L. Wang *et al.*	(BELLE Collab.)	REFID=56839
LEES	14F	PR D89 111103	J.P. Lees *et al.*	(BABAR Collab.)	REFID=55938
WANG	13B	PR D87 051101	X.L. Wang *et al.*	(BELLE Collab.)	REFID=55377
PAKHLOVA	09	PR D80 091101	G. Pakhlova *et al.*	(BELLE Collab.)	REFID=53143
LIU	08H	PR D78 014032	Z.Q. Liu, X.S. Qin, C.Z. Yuan		REFID=52296
AUBERT	07S	PRL 98 212001	B. Aubert *et al.*	(BABAR Collab.)	REFID=51724
WANG	07D	PRL 99 142002	X.L. Wang *et al.*	(BELLE Collab.)	REFID=51959