$\psi(4660)$

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

also known as $Y(4660)$; was $X(4660)$

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

$\psi(4660)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
4623 ±10 OUR AVERAGE		Error includes scale factor of 3.7. See the ideogram below.			
4603.1± 3.9± 0.8		[1] ABLIKIM	24BN	BES3	$e^+e^- \to D_s^+ D_{s2}^*(2573)^-$
4584 ±14 ±80		[2] ABLIKIM	24BN	BES3	$e^+e^- \to D_s^+ D_{s1}(2536)^-$
$4708\ ^{+17}_{-15}$ ±21		[3] ABLIKIM	23BI	BES3	$e^+e^- \to K^+K^- J/\psi$
4701.8±10.9± 2.7		[4] ABLIKIM	23H	BES3	$e^+e^- \to \phi\chi_{c2}$
4675.3±29.5± 3.5		[5] ABLIKIM	23X	BES3	$e^+e^- \to D^{*0}D^{*-}\pi^+$
4651.0±37.8± 2.1		[6] ABLIKIM	21AJ	BES3	$e^+e^- \to \pi^+\pi^-\psi(2S)$
$4619.8^{+\ 8.9}_{-\ 8.0}$± 2.3	66	[7] JIA	20	BELL	$e^+e^- \to \gamma D_s^+ D_{s2}^*(2573)^-$
$4625.9^{+\ 6.2}_{-\ 6.0}$± 0.4	89	[8] JIA	19A	BELL	$e^+e^- \to \gamma D_s^+ D_{s1}(2536)^-$
4652 ±10 ±11	279	[9] WANG	15A	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
4669 ±21 ± 3	37	[10] LEES	14F	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
$4634\ ^{+\ 8}_{-\ 7}\ ^{+\ 5}_{-\ 8}$	142	[11] PAKHLOVA	08B	BELL	$e^+e^- \to \Lambda_c^+\Lambda_c^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
4647.9± 8.6± 0.8		[12] ABLIKIM	22R	BES3	$e^+e^- \to \pi^+\pi^-\chi_{c1}\gamma$
4652.5± 3.4± 1.1		[13] DAI	17	RVUE	$e^+e^- \to \Lambda_c^+\Lambda_c^-$
4645.2± 9.5± 6.0		[14] ZHANG	17B	RVUE	$e^+e^- \to \pi^+\pi^-\psi(2S)$
4646.4± 9.7± 4.8		[15] ZHANG	17C	RVUE	$e^+e^- \to \pi^+\pi^- J/\psi$ or $\psi(2S)$
$4661\ ^{+\ 9}_{-\ 8}$ ± 6	44	[16] LIU	08H	RVUE	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
4664 ±11 ± 5	44	WANG	07D	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$

[1] Extracted in a fit that employs two BW resonances. The second one at about 4720 MeV shows low statistical significance of 2.7 σ.

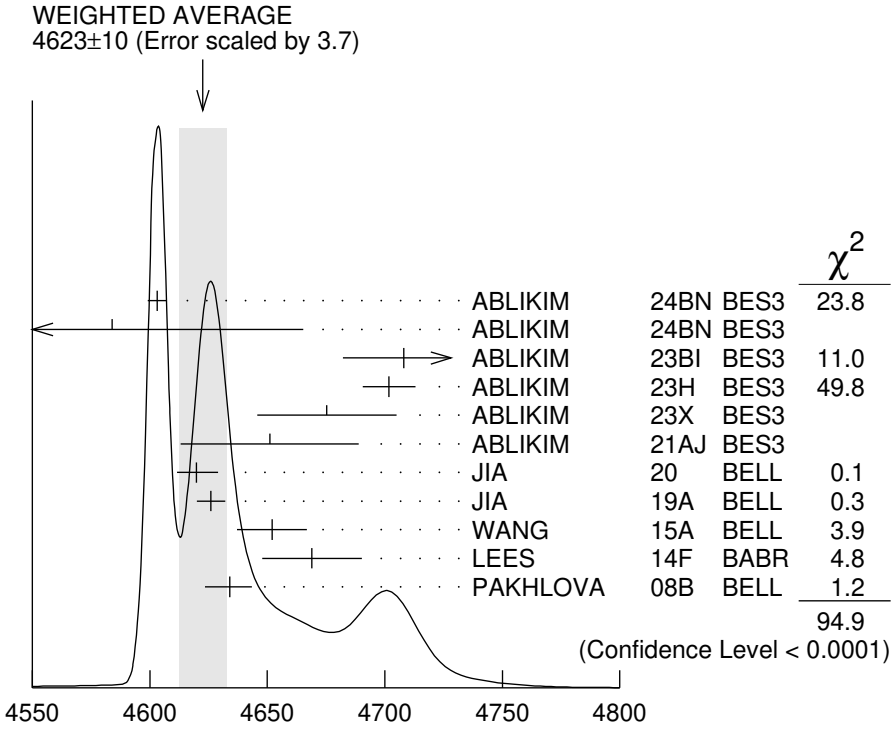
[2] Extracted from a fit with two BW functions. The second one located at about 4750 MeV show a low statistical significance of 4.3 σ.

[3] Seen as a peak in the c.m. energy dependence of the $e^+e^- \to K^+K^- J/\psi$ cross section using 5.85 fb^{-1} of data at c.m. energies 4.61–4.95 GeV. Statistical significance is over 5σ.

[4] Fit model parameterized as the coherent sum of a Breit-Wigner resonance and a continuum amplitude term.

[5] From a cross-section measurement of $e^+e^- \to D^{*0}D^{*-}\pi^+$ between 4.189 and 4.951 GeV, assuming a coherent sum of 3 Breit-Wigner resonances plus a continuum amplitude. The two other resonances have masses (widths) 4209.6 ± 7.5 (81.6 ± 19.9) MeV and 4469.1 ± 26.4 (246.3 ± 37.9) MeV.

[6] From a three-resonance fit to the Born cross section in the range $\sqrt{s}$ = 4.008–4.698 GeV.
[7] Using $D_{s2}^{*}(2573)^{-} \to \overline{D}^{0} K^{-}$ decays.
[8] From a fit of a Breit-Wigner convolved with a Gaussian.
[9] From a two-resonance fit. Supersedes WANG 07D.
[10] From a two-resonance fit.
[11] The $\pi^{+}\pi^{-}\psi(2S)$ and $\Lambda_{c}^{+}\Lambda_{c}^{-}$ states are not necessarily the same.
[12] 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.
[13] The pole parameters are extracted from the speed plot.
[14] From a three-resonance fit.
[15] 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.
[16] From a combined fit of AUBERT 07S and WANG 07D data with two resonances.



$\psi(4660)$ WIDTH

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
55 ± 9 OUR AVERAGE		Error includes scale factor of 1.9. See the ideogram below.			
57 ±12 ±219		[1] ABLIKIM	24BN	BES3	$e^{+}e^{-} \to D_{s}^{+} D_{s1}(2536)^{-}$
45.2± 5.7± 0.7		[2] ABLIKIM	24BN	BES3	$e^{+}e^{-} \to D_{s}^{+} D_{s2}^{*}(2573)^{-}$
$126\ ^{+27}_{-23}$ ± 30		[3] ABLIKIM	23BI	BES3	$e^{+}e^{-} \to K^{+}K^{-}J/\psi$
30.5±22.3± 14.6		[4] ABLIKIM	23H	BES3	$e^{+}e^{-} \to \phi\chi_{c2}$
218.3±72.9± 9.3		[5] ABLIKIM	23X	BES3	$e^{+}e^{-} \to D^{*0} D^{*-}\pi^{+}$

$155.4 \pm 24.8 \pm$	0.8		[6] ABLIKIM	21AJ	BES3	$e^+e^- \to \pi^+\pi^-\psi(2S)$
$47.0^{+31.3}_{-14.8} \pm$	4.6	66	[7] JIA	20	BELL	$e^+e^- \to \gamma D_s^+ D_{s2}^*(2573)^-$
$49.8^{+13.9}_{-11.5} \pm$	4.0	89	[8] JIA	19A	BELL	$e^+e^- \to \gamma D_s^+ D_{s1}(2536)^-$
$68 \pm 11 \pm$	5	279	[9] WANG	15A	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
$104 \pm 48 \pm$	10	37	[10] LEES	14F	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
$92 \ ^{+40}_{-24} \ ^{+10}_{-21}$		142	[11] PAKHLOVA	08B	BELL	$e^+e^- \to \Lambda_c^+\Lambda_c^-$

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

$33.1 \pm 18.6 \pm$	4.1		[12] ABLIKIM	22R	BES3	$e^+e^- \to \pi^+\pi^-\chi_{c1}\gamma$
$62.6 \pm 5.6 \pm$	4.3		[13] DAI	17	RVUE	$e^+e^- \to \Lambda_c^+\Lambda_c^-$
$113.8 \pm 18.1 \pm$	3.4		[14] ZHANG	17B	RVUE	$e^+e^- \to \pi^+\pi^-\psi(2S)$
$103.5 \pm 15.6 \pm$	4.0		[15] ZHANG	17C	RVUE	$e^+e^- \to \pi^+\pi^- J/\psi$ or $\psi(2S)$
$42 \ ^{+17}_{-12} \pm$	6	44	[16] LIU	08H	RVUE	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
$48 \pm 15 \pm$	3	44	WANG	07D	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$

[1] Extracted from a fit with two BW functions. The second one located at about 4750 MeV show a low statistical significance of 4.3 σ.

[2] Extracted in a fit that employs two BW resonances. The second one at about 4720 MeV shows low statistical significance of 2.7 σ.

[3] Seen as a peak in the c.m. energy dependence of the $e^+e^- \to K^+K^- J/\psi$ cross section using 5.85 fb^{-1} of data at c.m. energies 4.61–4.95 GeV. Statistical significance is over 5σ.

[4] Fit model parameterized as the coherent sum of a Breit-Wigner resonance and a continuum amplitude term.

[5] From a cross-section measurement of $e^+e^- \to D^{*0}D^{*-}\pi^+$ between 4.189 and 4.951 GeV, assuming a coherent sum of 3 Breit-Wigner resonances plus a continuum amplitude. The two other resonances have masses (widths) 4209.6 ± 7.5 (81.6 ± 19.9) MeV and 4469.1 ± 26.4 (246.3 ± 37.9) MeV.

[6] From a three-resonance fit to the Born cross section in the range $\sqrt{s}$ = 4.008–4.698 GeV.

[7] Using $D_{s2}^*(2573)^- \to \overline{D}^0 K^-$ decays.

[8] From a fit of a Breit-Wigner convolved with a Gaussian.

[9] From a two-resonance fit. Supersedes WANG 07D.

[10] From a two-resonance fit.

[11] The $\pi^+\pi^-\psi(2S)$ and $\Lambda_c^+\Lambda_c^-$ states are not necessarily the same.

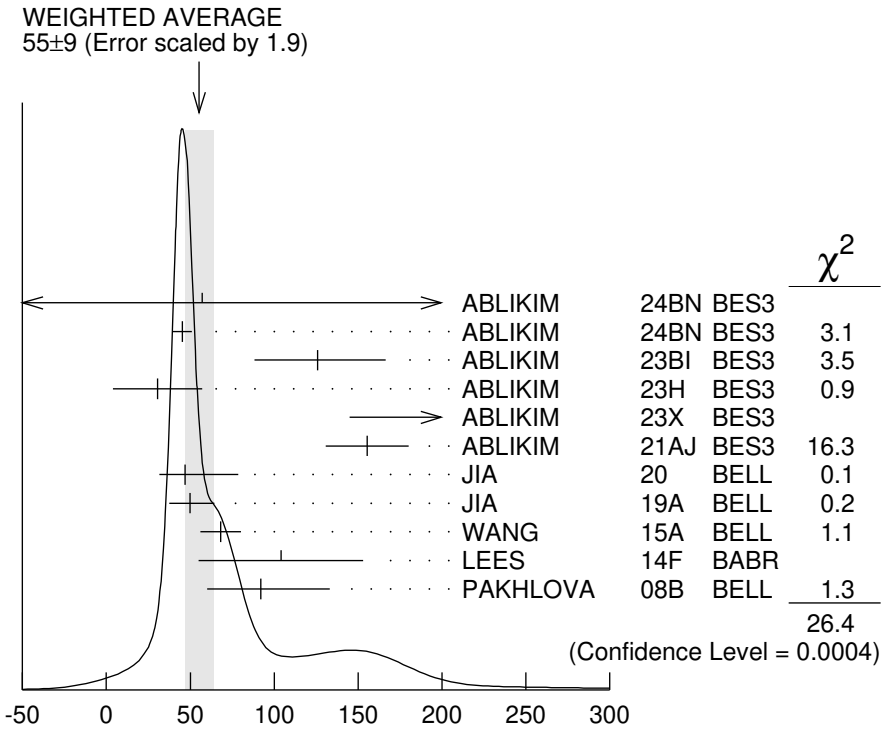
[12] From a fit to the $e^+e^- \to \pi^+\pi^-\psi(3823)$ cross section between 4.23 and 4.70 GeV with two coherent Breit-Wigner resonances. The data is also consistent with a single peak with mass 4417.5 ± 26.2 ± 3.5 MeV and width 245 ± 48 ± 13 MeV.

[13] The pole parameters are extracted from the speed plot.

[14] From a three-resonance fit.

[15] 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.

[16] From a combined fit of AUBERT 07S and WANG 07D data with two resonances.



$\psi(4660)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$e^+ e^-$	not seen
Γ_2	$\psi(2S)\pi^+\pi^-$	seen
Γ_3	$J/\psi\eta$	not seen
Γ_4	$D^0 D^{*-}\pi^+$	not seen
Γ_5	$D^{*0} D^{*-}\pi^+$	seen
Γ_6	$\psi_2(3823)\pi^+\pi^-$	seen
Γ_7	$\chi_{c1}\gamma$	not seen
Γ_8	$\chi_{c1}\phi$	not seen
Γ_9	$\chi_{c2}\gamma$	not seen
Γ_{10}	$\chi_{c2}\phi$	not seen
Γ_{11}	$\Lambda_c^+\Lambda_c^-$	seen
Γ_{12}	$D_s^+ D_{s1}(2536)^-$	seen
Γ_{13}	$D_s^+ D_{s2}^*(2573)^-$	seen
Γ_{14}	$\omega\pi^0$	not seen
Γ_{15}	$\omega\eta$	not seen
Γ_{16}	$\Sigma^+\overline{\Sigma}^-$	not seen
Γ_{17}	$\Xi^0\overline{\Xi}^0$	
Γ_{18}	$\Xi^-\overline{\Xi}^+$	not seen

Γ_{19}	$p K^- \overline{\Lambda} +$ c.c.	not seen
Γ_{20}	$\Lambda \overline{\Xi}^+ K^-$ + c.c.	not seen
Γ_{21}	$\Sigma^0 \overline{\Xi}^+ K^-$ + c.c.	not seen

$\psi(4660)$ Γ(i) × Γ(e^+e^-)/Γ(total)

$\Gamma(\psi(2S)\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_2\Gamma_1/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
4.7±3.8		[1] ABLIKIM	21AJ	BES3	$e^+e^- \to \pi^+\pi^-\psi(2S)$
11.2±3.2		[2] ABLIKIM	21AJ	BES3	$e^+e^- \to \pi^+\pi^-\psi(2S)$
4.7±4.2		[3] ABLIKIM	21AJ	BES3	$e^+e^- \to \pi^+\pi^-\psi(2S)$
11.3±3.3		[4] ABLIKIM	21AJ	BES3	$e^+e^- \to \pi^+\pi^-\psi(2S)$
2.0±0.3±0.2	279	[5] WANG	15A	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
8.1±1.1±1.0	279	[6] WANG	15A	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
2.7±1.3±0.5	37	[7] LEES	14F	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
7.5±1.7±0.7	37	[8] LEES	14F	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
$2.2^{+0.7}_{-0.6}$	44	[9] LIU	08H	RVUE	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
5.9±1.6	44	[10] LIU	08H	RVUE	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
3.0±0.9±0.3	44	[7] WANG	07D	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$
7.6±1.8±0.8	44	[8] WANG	07D	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$

[1] Solution I of four equivalent solutions in a fit using three interfering resonances.
[2] Solution II of four equivalent solutions in a fit using three interfering resonances.
[3] Solution III of four equivalent solutions in a fit using three interfering resonances.
[4] Solution IV of four equivalent solutions in a fit using three interfering resonances.
[5] Solution I of two equivalent solutions from a fit using two interfering resonances. Supersedes WANG 07D.
[6] Solution II of two equivalent solutions from a fit using two interfering resonances. Supersedes WANG 07D.
[7] Solution I of two equivalent solutions in a fit using two interfering resonances.
[8] Solution II of two equivalent solutions in a fit using two interfering resonances.
[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.

$\Gamma(J/\psi\eta) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_3\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.94	90	WANG	13B	BELL	$e^+e^- \to J/\psi\eta\gamma$

$\Gamma(D^{*0}D^{*-}\pi^+) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_5\Gamma_1/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
19 to 2005	[1] ABLIKIM	23X	BES3	$e^+e^- \to D^{*0}D^{*-}\pi^+$

[1] From a cross-section measurement of $e^+e^- \to D^{*0}D^{*-}\pi^+$ between 4.189 and 4.951 GeV, assuming a coherent sum of 3 Breit-Wigner resonances plus a continuum amplitude. Depending on solutions I – VIII with same fit qualities.

$\Gamma(\chi_{c1}\gamma) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_7\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<0.45	90	[1] HAN	15	BELL	10.58 $e^+e^- \to \chi_{c1}\gamma$

[1] Using B($\eta \to \gamma\gamma$) = (39.41 ± 0.21)%.

$\Gamma(\chi_{c1}\phi) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_8\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.04	90	[1] ABLIKIM	23H	BES3	$e^+e^- \to \phi\chi_{c1}$

[1] Fit model parameterized as the coherent sum of a Breit-Wigner resonance and a continuum amplitude term.

$\Gamma(\chi_{c2}\gamma) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_9\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<2.1	90	[1] HAN	15	BELL	10.58 $e^+e^- \to \chi_{c2}\gamma$

[1] Using B($\eta \to \gamma\gamma$) = (39.41 ± 0.21)%.

$\Gamma(\chi_{c2}\phi) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{10}\Gamma_1/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.13±0.13	[1] ABLIKIM	23H	BES3	$e^+e^- \to \phi\chi_{c2}$

[1] Fit model parameterized as the coherent sum of a Breit-Wigner resonance and a continuum amplitude term. Constructive solution of the interference. Destructive solution gives 0.66 ± 0.41 eV.

$\Gamma(D_s^+ D_{s1}(2536)^-) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{12}\Gamma_1/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{14.3^{+2.8}_{-2.6}\pm1.5}$	89	[1] JIA	19A	BELL	$e^+e^- \to \gamma D_s^+ D_{s1}(2536)^-$

[1] Assuming B($D_{s1}(2536)^- \to \overline{D}^{*0}K^-$) = 1.

$\Gamma(D_s^+ D_{s2}^*(2573)^-) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{13}\Gamma_1/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{14.7^{+5.9}_{-4.5}\pm3.6}$	66	[1] JIA	20	BELL	$e^+e^- \to \gamma D_s^+ D_{s2}^*(2573)^-$

[1] Assuming B($D_{s2}^*(2573)^- \to \overline{D}^0K^-$) = 1.

$\Gamma(\Sigma^+\overline{\Sigma}^-) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{16}\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{<49.6\times10^{-3}}$	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.

$\Gamma(\Xi^0\overline{\Xi}^0) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{17}\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{<45.0\times10^{-3}}$	90	[1] ABLIKIM	24CD	BES3	$e^+e^- \to \psi(4660)$

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

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

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
$<19.9 \times 10^{-3}$	90	[1] ABLIKIM	23BK	BES3	$e^+e^- \to \psi(4660)$

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

$\Gamma(pK^-\overline{\Lambda}+\text{c.c.}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{19}\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
$<2.8 \times 10^{-3}$	90	[1] ABLIKIM	23BL	BES3	$e^+e^- \to \psi(4660)$

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

$\Gamma(\Lambda\overline{\Xi}^+K^-+\text{c.c.}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{20}\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
$<13.0 \times 10^{-3}$	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.

$\Gamma(\Sigma^0\overline{\Xi}^+K^-+\text{c.c.}) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{21}\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
$<77.3 \times 10^{-3}$	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.

$\psi(4660)$ $\Gamma(i) \times \Gamma(e^+e^-)/\Gamma^2(\text{total})$

$\Gamma(D^0D^{*-}\pi^+)/\Gamma_{\text{total}} \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_4/\Gamma \times \Gamma_1/\Gamma$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<0.37 \times 10^{-6}$	90	[1] PAKHLOVA	09	BELL	$e^+e^- \to D^0D^{*-}\pi^+$

[1] Using $4664 \pm 11 \pm 5$ MeV for the mass of $\psi(4660)$.

$\Gamma(\Lambda_c^+\Lambda_c^-)/\Gamma_{\text{total}} \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{11}/\Gamma \times \Gamma_1/\Gamma$

VALUE (units 10^{-6})	EVTS	DOCUMENT ID		TECN	COMMENT
$0.68^{+0.16+0.29}_{-0.15-0.30}$	142	[1] PAKHLOVA	08B	BELL	$e^+e^- \to \Lambda_c^+\Lambda_c^-$

[1] The $\pi^+\pi^-\psi(2S)$ and $\Lambda_c^+\Lambda_c^-$ states are not necessarily the same.

$\psi(4660)$ BRANCHING RATIOS

$\Gamma(D^0D^{*-}\pi^+)/\Gamma(\psi(2S)\pi^+\pi^-)$ Γ_4/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<10	90	PAKHLOVA	09	BELL	$e^+e^- \to D^0D^{*-}\pi^+$

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

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[1] ABLIKIM	22R	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.

$\Gamma(\omega\pi^0)/\Gamma_{total}$ Γ_{14}/Γ

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

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

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

$\psi(4660)$ REFERENCES

ABLIKIM	24AH	JHEP 2405 022	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	24AL	JHEP 2407 258	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	24BN	PRL 133 171903	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	24CD	JHEP 2411 062	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	23BI	PRL 131 211902	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	23BK	JHEP 2311 228	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	23BL	JHEP 2312 027	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	23H	JHEP 2301 132	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	23X	PRL 130 121901	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	22K	JHEP 2207 064	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	22R	PRL 129 102003	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	21AJ	PR D104 052012	M. Ablikim *et al.*	(BESIII Collab.)
JIA	20	PR D101 091101	S. Jia *et al.*	(BELLE Collab.)
JIA	19A	PR D100 111103	S. Jia *et al.*	(BELLE Collab.)
DAI	17	PR D96 116001	L.-Y. Dai, J. Haidenbauer, U.-G. Meissner	(JULI+)
ZHANG	17B	PR D96 054008	J. Zhang, J. Zhang	
ZHANG	17C	EPJ C77 727	J. Zhang, L. Yuan	
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