NODE=M189

# $\psi(4660)$

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

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."

NODE=M189

## $\psi(4660)$ MASS

NODE=M189M

| VALUE (MeV) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **4623 ±10 OUR AVERAGE** | | Error includes scale factor of 3.7. See the ideogram below. | | | |
| $4603.1 \pm 3.9 \pm 0.8$ | | [1] ABLIKIM | 24BN | BES3 | $e^+e^- \to D_s^+ D_{s2}^*(2573)^-$ |
| $4584 \pm 14 \pm 80$ | | [2] ABLIKIM | 24BN | BES3 | $e^+e^- \to D_s^+ D_{s1}(2536)^-$ |
| $4708 \,^{+17}_{-15} \pm 21$ | | [3] ABLIKIM | 23BI | BES3 | $e^+e^- \to K^+K^- J/\psi$ |
| $4701.8 \pm 10.9 \pm 2.7$ | | [4] ABLIKIM | 23H | BES3 | $e^+e^- \to \phi\chi_{c2}$ |
| $4675.3 \pm 29.5 \pm 3.5$ | | [5] ABLIKIM | 23X | BES3 | $e^+e^- \to D^{*0}D^{*-}\pi^+$ |
| $4651.0 \pm 37.8 \pm 2.1$ | | [6] ABLIKIM | 21AJ | BES3 | $e^+e^- \to \pi^+\pi^-\psi(2S)$ |
| $4619.8 \,^{+\ 8.9}_{-\ 8.0} \pm 2.3$ | 66 | [7] JIA | 20 | BELL | $e^+e^- \to \gamma D_s^+ D_{s2}^*(2573)^-$ |
| $4625.9 \,^{+\ 6.2}_{-\ 6.0} \pm 0.4$ | 89 | [8] JIA | 19A | BELL | $e^+e^- \to \gamma D_s^+ D_{s1}(2536)^-$ |
| $4652 \pm 10 \pm 11$ | 279 | [9] WANG | 15A | BELL | 10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$ |
| $4669 \pm 21 \pm 3$ | 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. • • • | | | | | |
| $4647.9 \pm 8.6 \pm 0.8$ | | [12] ABLIKIM | 22R | BES3 | $e^+e^- \to \pi^+\pi^-\chi_{c1}\gamma$ |
| $4652.5 \pm 3.4 \pm 1.1$ | | [13] DAI | 17 | RVUE | $e^+e^- \to \Lambda_c^+\Lambda_c^-$ |
| $4645.2 \pm 9.5 \pm 6.0$ | | [14] ZHANG | 17B | RVUE | $e^+e^- \to \pi^+\pi^-\psi(2S)$ |
| $4646.4 \pm 9.7 \pm 4.8$ | | [15] ZHANG | 17C | RVUE | $e^+e^- \to \pi^+\pi^- J/\psi$ or $\psi(2S)$ |
| $4661 \,^{+\ 9}_{-\ 8} \pm 6$ | 44 | [16] LIU | 08H | RVUE | 10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$ |
| $4664 \pm 11 \pm 5$ | 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 $\sigma$. NODE=M189M;LINKAGE=N

[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 $\sigma$. NODE=M189M;LINKAGE=O

[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 $5\sigma$. NODE=M189M;LINKAGE=M

[4] Fit model parameterized as the coherent sum of a Breit-Wigner resonance and a continuum amplitude term. NODE=M189M;LINKAGE=J

[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. NODE=M189M;LINKAGE=L

[6] From a three-resonance fit to the Born cross section in the range $\sqrt{s}$ = 4.008–4.698 GeV. NODE=M189M;LINKAGE=G

[7] Using $D_{s2}^*(2573)^- \to \overline{D}^0 K^-$ decays. NODE=M189M;LINKAGE=F

[8] From a fit of a Breit-Wigner convolved with a Gaussian. NODE=M189M;LINKAGE=E

[9] From a two-resonance fit. Supersedes WANG 07D. NODE=M189M;LINKAGE=A

[10] From a two-resonance fit. NODE=M189M;LINKAGE=LE

[11] The $\pi^+\pi^-\psi(2S)$ and $\Lambda_c^+\Lambda_c^-$ states are not necessarily the same. NODE=M189M;LINKAGE=PA

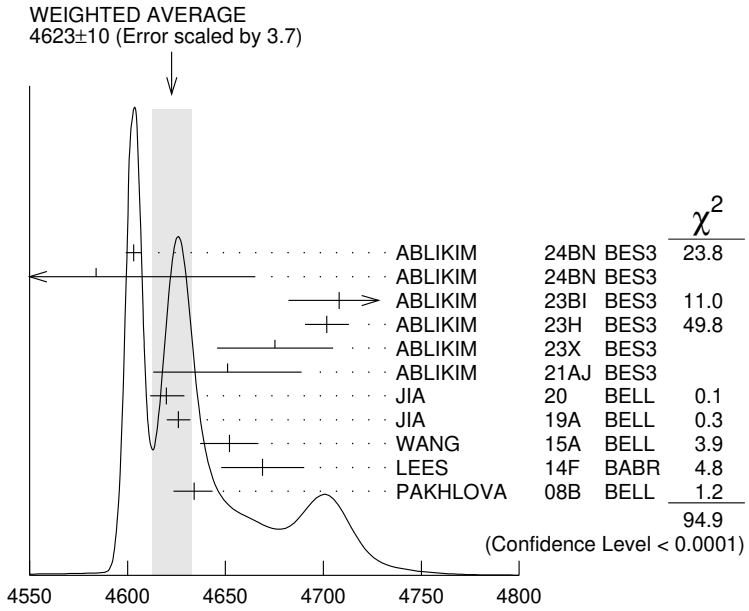
[12] From a fit to the $e^+e^- \to \pi^+\pi^-\psi(3823)$ cross section between 4.23 and 4.70 GeV with two coherent Breit-Wigner resonances. The data is also consistent with a single peak with mass 4417.5 ± 26.2 ± 3.5 MeV and width 245 ± 48 ± 13 MeV. NODE=M189M;LINKAGE=I

[13] The pole parameters are extracted from the speed plot. NODE=M189M;LINKAGE=C

[14] From a three-resonance fit. NODE=M189M;LINKAGE=D

[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. NODE=M189M;LINKAGE=B

[16] From a combined fit of AUBERT 07S and WANG 07D data with two resonances. NODE=M189M;LINKAGE=LI




## $\psi(4660)$ WIDTH

NODE=M189W

NODE=M189W

| 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 | $e^+e^- \to D_s^+ D_{s2}^*(2573)^-$ OCCUR=2 |
| $126\ ^{+27}_{-23}$ ± 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±24.8± 0.8 | | [6] ABLIKIM | 21AJ | BES3 | $e^+e^- \to \pi^+\pi^-\psi(2S)$ |
| $47.0^{+31.3}_{-14.8}$± 4.6 | 66 | [7] JIA | 20 | BELL | $e^+e^- \to \gamma D_s^+ D_{s2}^*(2573)^-$ |
| $49.8^{+13.9}_{-11.5}$± 4.0 | 89 | [8] JIA | 19A | BELL | $e^+e^- \to \gamma D_s^+ D_{s1}(2536)^-$ |
| 68 ±11 ± 5 | 279 | [9] WANG | 15A | BELL | 10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$ |
| 104 ±48 ± 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±18.6± 4.1 | | [12] ABLIKIM | 22R | BES3 | $e^+e^- \to \pi^+\pi^-\chi_{c1}\gamma$ |
| 62.6± 5.6± 4.3 | | [13] DAI | 17 | RVUE | $e^+e^- \to \Lambda_c^+\Lambda_c^-$ |
| 113.8±18.1± 3.4 | | [14] ZHANG | 17B | RVUE | $e^+e^- \to \pi^+\pi^-\psi(2S)$ |
| 103.5±15.6± 4.0 | | [15] ZHANG | 17C | RVUE | $e^+e^- \to \pi^+\pi^- J/\psi$ or $\psi(2S)$ |
| $42\ ^{+17}_{-12}$ ± 6 | 44 | [16] LIU | 08H | RVUE | 10.58 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$ |
| 48 ±15 ± 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 $\sigma$. NODE=M189W;LINKAGE=M

[2] Extracted in a fit that employs two BW resonances. The second one at about 4720 MeV shows low statistical significance of 2.7 $\sigma$. NODE=M189W;LINKAGE=N

[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 5$\sigma$. NODE=M189W;LINKAGE=L

[4] Fit model parameterized as the coherent sum of a Breit-Wigner resonance and a continuum amplitude term. NODE=M189W;LINKAGE=J

[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. NODE=M189W;LINKAGE=K

[6] From a three-resonance fit to the Born cross section in the range $\sqrt{s}$ = 4.008–4.698 GeV. NODE=M189W;LINKAGE=H

[7] Using $D_{s2}^*(2573)^- \to \overline{D}^0 K^-$ decays. NODE=M189W;LINKAGE=G

[8] From a fit of a Breit-Wigner convolved with a Gaussian. NODE=M189W;LINKAGE=F

[9] From a two-resonance fit. Supersedes WANG 07D. NODE=M189W;LINKAGE=A

[10] From a two-resonance fit. NODE=M189W;LINKAGE=LE

[11] The $\pi^+\pi^-\psi(2S)$ and $\Lambda_c^+\Lambda_c^-$ states are not necessarily the same. NODE=M189W;LINKAGE=B

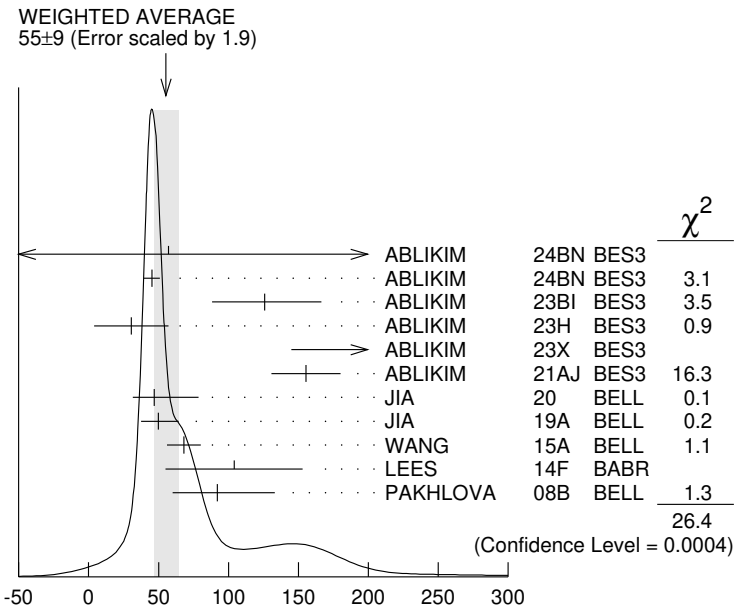
[12] From a fit to the $e^+e^- \to \pi^+\pi^-\psi(3823)$ cross section between 4.23 and 4.70 GeV with two coherent Breit-Wigner resonances. The data is also consistent with a single peak with mass 4417.5 ± 26.2 ± 3.5 MeV and width 245 ± 48 ± 13 MeV. NODE=M189W;LINKAGE=I

[13] The pole parameters are extracted from the speed plot. NODE=M189W;LINKAGE=D

[14] From a three-resonance fit. NODE=M189W;LINKAGE=E

[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. NODE=M189W;LINKAGE=C

[16] From a combined fit of AUBERT 07S and WANG 07D data with two resonances. NODE=M189W;LINKAGE=LI




## $\psi(4660)$ DECAY MODES

NODE=M189215;NODE=M189

| | Mode | Fraction ($\Gamma_i/\Gamma$) | |
|---|---|---|---|
| $\Gamma_1$ | $e^+e^-$ | not seen | DESIG=1;OUR EVAL;→ UNCHECKED ← |
| $\Gamma_2$ | $\psi(2S)\pi^+\pi^-$ | seen | DESIG=2;OUR EVAL;→ UNCHECKED ← |
| $\Gamma_3$ | $J/\psi\eta$ | not seen | DESIG=4;OUR EVAL;→ UNCHECKED ← |
| $\Gamma_4$ | $D^0 D^{*-}\pi^+$ | not seen | DESIG=3;OUR EVAL;→ UNCHECKED ← |
| $\Gamma_5$ | $D^{*0} D^{*-}\pi^+$ | seen | DESIG=15;OUR EVAL;→ UNCHECKED ← |
| $\Gamma_6$ | $\psi_2(3823)\pi^+\pi^-$ | seen | DESIG=10 |
| $\Gamma_7$ | $\chi_{c1}\gamma$ | not seen | DESIG=6;OUR EVAL;→ UNCHECKED ← |
| $\Gamma_8$ | $\chi_{c1}\phi$ | not seen | DESIG=13;OUR EVAL;→ UNCHECKED ← |
| $\Gamma_9$ | $\chi_{c2}\gamma$ | not seen | DESIG=7;OUR EVAL;→ UNCHECKED ← |
| $\Gamma_{10}$ | $\chi_{c2}\phi$ | not seen | DESIG=14;OUR EVAL;→ UNCHECKED ← |
| $\Gamma_{11}$ | $\Lambda_c^+\Lambda_c^-$ | seen | DESIG=5;OUR EVAL;→ UNCHECKED ← |
| $\Gamma_{12}$ | $D_s^+ D_{s1}(2536)^-$ | seen | DESIG=8;OUR EVAL;→ UNCHECKED ← |
| $\Gamma_{13}$ | $D_s^+ D_{s2}^*(2573)^-$ | seen | DESIG=9;OUR EVAL;→ UNCHECKED ← |
| $\Gamma_{14}$ | $\omega\pi^0$ | not seen | DESIG=11 |
| $\Gamma_{15}$ | $\omega\eta$ | not seen | DESIG=12 |
| $\Gamma_{16}$ | $\Sigma^+\overline{\Sigma}^-$ | not seen | DESIG=18;OUR EVAL;→ UNCHECKED ← |
| $\Gamma_{17}$ | $\Xi^0\overline{\Xi}^0$ | | DESIG=21 |
| $\Gamma_{18}$ | $\Xi^-\overline{\Xi}^+$ | not seen | DESIG=16;OUR EVAL;→ UNCHECKED ← |
| $\Gamma_{19}$ | $pK^-\overline{\Lambda}+$ c.c. | not seen | DESIG=17;OUR EVAL;→ UNCHECKED ← |
| $\Gamma_{20}$ | $\Lambda\overline{\Xi}^+K^-+$ c.c. | not seen | DESIG=19;OUR EVAL;→ UNCHECKED ← |
| $\Gamma_{21}$ | $\Sigma^0\overline{\Xi}^+K^-+$ c.c. | not seen | DESIG=20;OUR EVAL;→ UNCHECKED ← |

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

NODE=M189230

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

NODE=M189G1
NODE=M189G1

| 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 | $e^+e^- \to \pi^+\pi^-\psi(2S)$ | OCCUR=2 |
| 4.7±4.2 | | [3] ABLIKIM | 21AJ | BES3 | $e^+e^- \to \pi^+\pi^-\psi(2S)$ | OCCUR=3 |
| 11.3±3.3 | | [4] ABLIKIM | 21AJ | BES3 | $e^+e^- \to \pi^+\pi^-\psi(2S)$ | OCCUR=4 |
| 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 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$ | OCCUR=2 |
| 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 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$ | OCCUR=2 |
| $2.2^{+0.7}_{-0.6}$ | 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 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$ | OCCUR=2 |
| 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 $e^+e^- \to \gamma\pi^+\pi^-\psi(2S)$ | OCCUR=2 |

[1] Solution I of four equivalent solutions in a fit using three interfering resonances. NODE=M189G1;LINKAGE=C
[2] Solution II of four equivalent solutions in a fit using three interfering resonances. NODE=M189G1;LINKAGE=D
[3] Solution III of four equivalent solutions in a fit using three interfering resonances. NODE=M189G1;LINKAGE=E
[4] Solution IV of four equivalent solutions in a fit using three interfering resonances. NODE=M189G1;LINKAGE=F
[5] Solution I of two equivalent solutions from a fit using two interfering resonances. Supersedes WANG 07D. NODE=M189G1;LINKAGE=A
[6] Solution II of two equivalent solutions from a fit using two interfering resonances. Supersedes WANG 07D. NODE=M189G1;LINKAGE=B
[7] Solution I of two equivalent solutions in a fit using two interfering resonances. NODE=M189G1;LINKAGE=WA
[8] Solution II of two equivalent solutions in a fit using two interfering resonances. NODE=M189G1;LINKAGE=WN
[9] Solution I in a combined fit of AUBERT 07S and WANG 07D data with two resonances. NODE=M189G1;LINKAGE=LI
[10] Solution II in a combined fit of AUBERT 07S and WANG 07D data with two resonances. NODE=M189G1;LINKAGE=LU

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

NODE=M189G01
NODE=M189G01

| 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 | $e^+e^- \to J/\psi\eta\gamma$ |

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

NODE=M189R10
NODE=M189R10

| 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. NODE=M189R10;LINKAGE=A

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

NODE=M189G02
NODE=M189G02

| 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)%. NODE=M189G02;LINKAGE=A

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

NODE=M189R08
NODE=M189R08

| 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. NODE=M189R08;LINKAGE=A

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

NODE=M189G03
NODE=M189G03

| 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)%. NODE=M189G03;LINKAGE=A

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

NODE=M189R09
NODE=M189R09

| 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. NODE=M189R09;LINKAGE=A

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

NODE=M189R00
NODE=M189R00

| VALUE (eV) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| $14.3^{+2.8}_{-2.6} \pm 1.5$ | 89 | [1] JIA | 19A | BELL | $e^+e^- \to \gamma D_s^+ D_{s1}(2536)^-$ |

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

NODE=M189R00;LINKAGE=A

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

NODE=M189R04
NODE=M189R04

| VALUE (eV) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| $14.7^{+5.9}_{-4.5} \pm 3.6$ | 66 | [1] JIA | 20 | BELL | $e^+e^- \to \gamma D_s^+ D_{s2}^*(2573)^-$ |

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

NODE=M189R04;LINKAGE=A

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

NODE=M189R14
NODE=M189R14

| VALUE (eV) | CL% | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| $< 49.6 \times 10^{-3}$ | 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=M189R14;LINKAGE=A

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

NODE=M189R17
NODE=M189R17

| VALUE (eV) | CL% | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| $< 45.0 \times 10^{-3}$ | 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.

NODE=M189R17;LINKAGE=A

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

NODE=M189R11
NODE=M189R11

| 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.

NODE=M189R11;LINKAGE=A

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

NODE=M189R13
NODE=M189R13

| 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.

NODE=M189R13;LINKAGE=A

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

NODE=M189R15
NODE=M189R15

| 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.

NODE=M189R15;LINKAGE=A

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

NODE=M189R16
NODE=M189R16

| 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.

NODE=M189R16;LINKAGE=A

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

NODE=M189235

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

NODE=M189R02
NODE=M189R02

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

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

NODE=M189R02;LINKAGE=PA

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

NODE=M189R03
NODE=M189R03

| 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.

NODE=M189R03;LINKAGE=A

## $\psi(4660)$ BRANCHING RATIOS

NODE=M189225

### $\Gamma(D^0 D^{*-}\pi^+)/\Gamma(\psi(2S)\pi^+\pi^-)$ $\Gamma_4/\Gamma_2$

NODE=M189R01
NODE=M189R01

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

### $\Gamma(\psi_2(3823)\pi^+\pi^-)/\Gamma_{total}$ $\Gamma_6/\Gamma$

NODE=M189R05
NODE=M189R05

| 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.

NODE=M189R05;LINKAGE=A

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

NODE=M189R06
NODE=M189R06

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

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

NODE=M189R07
NODE=M189R07

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

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