$\psi(4260)$

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

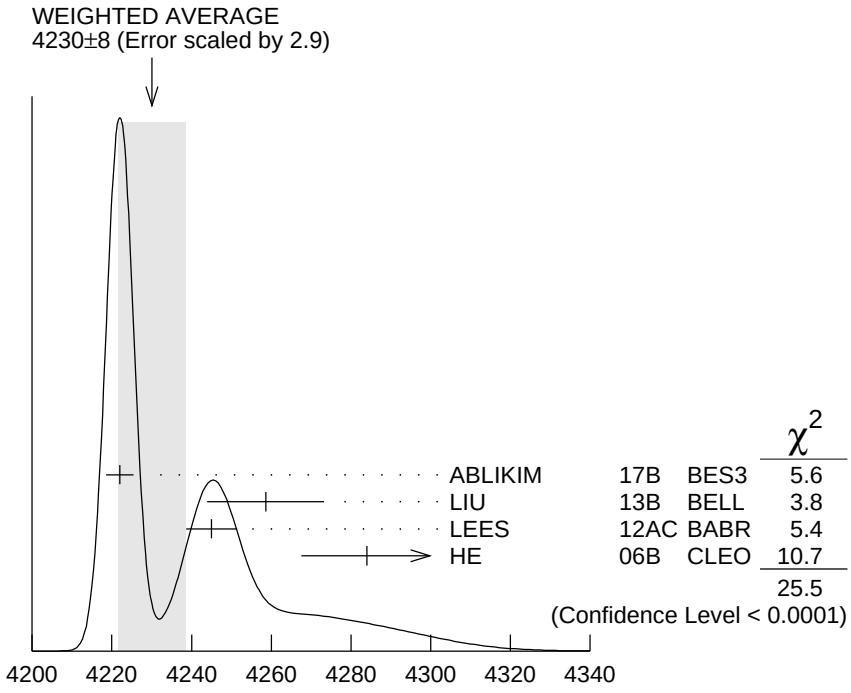
also known as $Y(4260)$; was $X(4260)$

This state shows properties different from a conventional $q\overline{q}$ state. A candidate for an exotic structure. See the review on non-$q\overline{q}$ states.

Seen in radiative return from e^+e^- collisions at $\sqrt{s} = 9.54$–10.58 GeV by AUBERT,B 05I, HE 06B, and YUAN 07, and in e^+e^- collisions at $\sqrt{s} \approx 4.26$ GeV by COAN 06. Possibly seen by AUBERT 06 in $B^- \to K^-\pi^+\pi^- J/\psi$. See also the review on "Spectroscopy of mesons containing two heavy quarks."

$\psi(4260)$ MASS

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
4230 ± 8 OUR AVERAGE		Error includes scale factor of 2.9. See the ideogram below.			
4222.0 ± 3.1 ± 1.4		[1] ABLIKIM	17B	BES3	$e^+e^- \to \pi^+\pi^- J/\psi$
4258.6 ± 8.3 ± 12.1		[2] LIU	13B	BELL	$e^+e^- \to \gamma\pi^+\pi^- J/\psi$
4245 ± 5 ± 4		[3] LEES	12AC	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^- J/\psi$
4284 $^{+17}_{-16}$ ± 13.6		HE	06B	CLEO	9.4–10.6 $e^+e^- \to \gamma\pi^+\pi^- J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
4209.1 ± 6.8 ± 7.0		[4] ZHANG	17B	RVUE	$e^+e^- \to \pi^+\pi^-\psi(2S)$
4223.3 ± 1.6 ± 2.5		[5] ZHANG	17C	RVUE	$e^+e^- \to \pi^+\pi^- J/\psi$ or $\psi(2S)$
4247 ± 12	$^{+17}_{-32}$	[2,6] YUAN	07	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^- J/\psi$
4259 ± 8	$^{+2}_{-6}$ 125	[7] AUBERT,B	05I	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^- J/\psi$



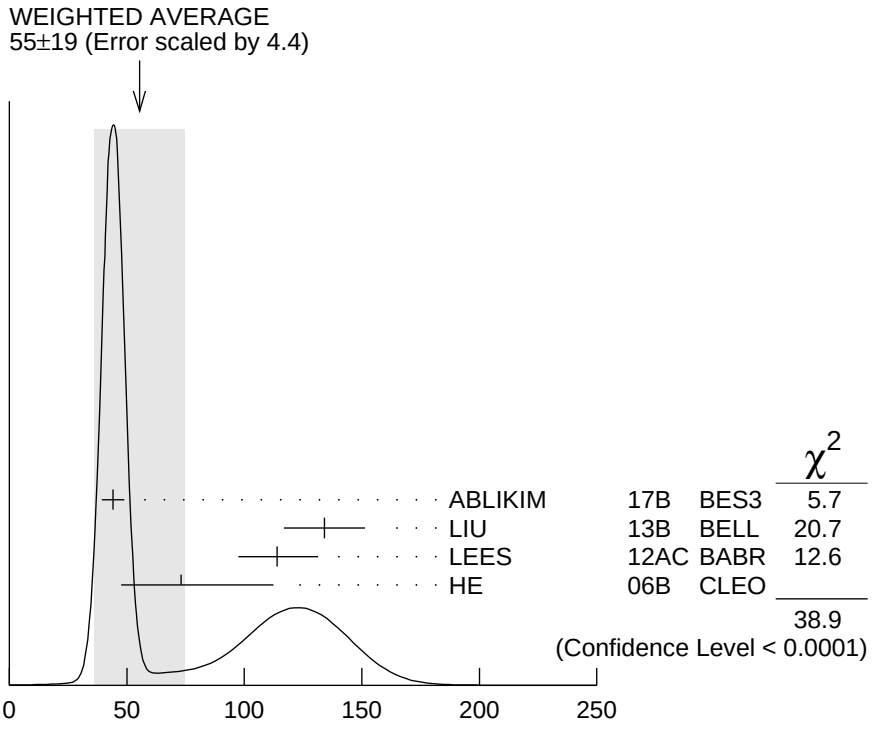
		χ^2
ABLIKIM	17B BES3	5.6
LIU	13B BELL	3.8
LEES	12AC BABR	5.4
HE	06B CLEO	10.7
		25.5

(Confidence Level < 0.0001)

[1] From a three-resonance fit.
[2] From a two-resonance fit.
[3] From a single-resonance fit. Supersedes AUBERT,B 05I.
[4] From a three-resonance fit.
[5] 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.
[6] Superseded by LIU 13B.
[7] From a single-resonance fit. Two interfering resonances are not excluded. Superseded by LEES 12AC.

$\psi(4260)$ WIDTH

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
55 ±19 OUR AVERAGE		Error includes scale factor of 4.4. See the ideogram below.			
44.1± 4.3± 2.0		[1] ABLIKIM	17B	BES3	$e^+e^- \to \pi^+\pi^- J/\psi$
134.1±16.4± 5.5		[2] LIU	13B	BELL	$e^+e^- \to \gamma\pi^+\pi^- J/\psi$
$114\ ^{+16}_{-15}$ ± 7		[3] LEES	12AC	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^- J/\psi$
$73\ ^{+39}_{-25}$ ± 5 13.6		HE	06B	CLEO	9.4–10.6 $e^+e^- \to \gamma\pi^+\pi^- J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
76.6±14.2± 2.4		[4] ZHANG	17B	RVUE	$e^+e^- \to \pi^+\pi^-\psi(2S)$
54.2± 2.6± 1.0		[5] ZHANG	17C	RVUE	$e^+e^- \to \pi^+\pi^- J/\psi$ or $\psi(2S)$
108 ±19 ±10		[2,6] YUAN	07	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^- J/\psi$
88 ±23 $^{+\ 6}_{-\ 4}$ 125		[7] AUBERT,B	05I	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^- J/\psi$



[1] From a three-resonance fit.
[2] From a two-resonance fit.
[3] From a single-resonance fit. Supersedes AUBERT,B 05I.
[4] From a three-resonance fit.
[5] 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.
[6] Superseded by LIU 13B.
[7] From a single-resonance fit. Two interfering resonances are not excluded. Superseded by LEES 12AC.

$\psi(4260)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	e^+e^-	
Γ_2	$J/\psi\pi^+\pi^-$	seen
Γ_3	$J/\psi f_0(980)$, $f_0(980) \to \pi^+\pi^-$	seen
Γ_4	$Z_c(3900)^\pm\pi^\mp$, $Z_c^\pm \to J/\psi\pi^\pm$	seen
Γ_5	$J/\psi\pi^0\pi^0$	seen
Γ_6	$J/\psi K^+K^-$	seen
Γ_7	$J/\psi K_S^0 K_S^0$	not seen
Γ_8	$J/\psi\eta$	not seen
Γ_9	$J/\psi\pi^0$	not seen
Γ_{10}	$J/\psi\eta'$	not seen
Γ_{11}	$J/\psi\pi^+\pi^-\pi^0$	not seen
Γ_{12}	$J/\psi\eta\pi^0$	not seen
Γ_{13}	$J/\psi\eta\eta$	not seen
Γ_{14}	$\psi(2S)\pi^+\pi^-$	not seen
Γ_{15}	$\psi(2S)\eta$	not seen
Γ_{16}	$\chi_{c0}\omega$	not seen
Γ_{17}	$\chi_{c1}\pi^+\pi^-\pi^0$	not seen
Γ_{18}	$\chi_{c2}\pi^+\pi^-\pi^0$	not seen
Γ_{19}	$h_c(1P)\pi^+\pi^-$	not seen
Γ_{20}	$\phi\pi^+\pi^-$	not seen
Γ_{21}	$\phi f_0(980) \to \phi\pi^+\pi^-$	not seen
Γ_{22}	$D\overline{D}$	not seen
Γ_{23}	$D^0\overline{D}^0$	not seen
Γ_{24}	D^+D^-	not seen
Γ_{25}	$D^*\overline{D}$ +c.c.	not seen
Γ_{26}	$D^*(2007)^0\overline{D}^0$ +c.c.	not seen
Γ_{27}	$D^*(2010)^+D^-$ +c.c.	not seen
Γ_{28}	$D^*\overline{D}^*$	not seen
Γ_{29}	$D^*(2007)^0\overline{D}^*(2007)^0$	not seen
Γ_{30}	$D^*(2010)^+D^*(2010)^-$	not seen
Γ_{31}	$D\overline{D}\pi$ +c.c.	

Γ_{32}	$D^0 D^- \pi^+ +$c.c. (excl. $D^*(2007)^0 \overline{D}^{*0} +$c.c., $D^*(2010)^+ D^- +$c.c.)	not seen
Γ_{33}	$D \overline{D}^* \pi +$c.c. (excl. $D^* \overline{D}^*$)	not seen
Γ_{34}	$D^0 D^{*-} \pi^+ +$c.c. (excl. $D^*(2010)^+ D^*(2010)^-$)	not seen
Γ_{35}	$D^0 D^*(2010)^- \pi^+ +$c.c.	not seen
Γ_{36}	$D^* \overline{D}^* \pi$	not seen
Γ_{37}	$D_s^+ D_s^-$	not seen
Γ_{38}	$D_s^{*+} D_s^- +$c.c.	not seen
Γ_{39}	$D_s^{*+} D_s^{*-}$	not seen
Γ_{40}	$p \overline{p}$	not seen
Γ_{41}	$p \overline{p} \pi^0$	not seen
Γ_{42}	$K_S^0 K^\pm \pi^\mp$	not seen
Γ_{43}	$K^+ K^- \pi^0$	not seen

Radiative decays

Γ_{44}	$\eta_c(1S)\gamma$	possibly seen
Γ_{45}	$\chi_{c1}\gamma$	not seen
Γ_{46}	$\chi_{c2}\gamma$	not seen
Γ_{47}	$\chi_{c1}(3872)\gamma$	seen

$\psi(4260)$ Γ(i) × $\Gamma(e^+e^-)/\Gamma$(total)

$\Gamma(J/\psi\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\quad\quad$ $\Gamma_2\Gamma_1/\Gamma$

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
9.2±1.0 OUR AVERAGE					
9.2±0.8±0.7		[1] LEES	12AC	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^- J/\psi$
$8.9^{+3.9}_{-3.1}\pm1.8$	8.1	HE	06B	CLEO	9.4–10.6 $e^+e^- \to \gamma\pi^+\pi^- J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
6.4±0.8±0.6		[2] LIU	13B	BELL	$e^+e^- \to \gamma\pi^+\pi^- J/\psi$
20.5±1.4±2.0		[3] LIU	13B	BELL	$e^+e^- \to \gamma\pi^+\pi^- J/\psi$
$6.0\pm1.2^{+4.7}_{-0.5}$		[2,4] YUAN	07	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^- J/\psi$
$20.6\pm2.3^{+9.1}_{-1.7}$		[3,4] YUAN	07	BELL	10.58 $e^+e^- \to \gamma\pi^+\pi^- J/\psi$
$5.5\pm1.0^{+0.8}_{-0.7}$	125	[5] AUBERT,B	05I	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^- J/\psi$

[1] From a single-resonance fit. Supersedes AUBERT,B 05I.
[2] Solution I of two equivalent solutions in a fit using two interfering resonances.
[3] Solution II of two equivalent solutions in a fit using two interfering resonances.
[4] Superseded by LIU 13B.
[5] From a single-resonance fit. Two interfering resonances are not excluded. Superseded by LEES 12AC.

$\Gamma(J/\psi K^+ K^-) \times \Gamma(e^+ e^-)/\Gamma_{\text{total}}$ $\Gamma_6\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<1.7	90	[1] SHEN	14	BELL	9.4–10.9 $e^+ e^- \to \gamma K^+ K^- J/\psi$

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

<1.2	90	[2] YUAN	08	BELL	$e^+ e^- \to \gamma K^+ K^- J/\psi$

[1] From a fit of the broad $K^+ K^- J/\psi$ enhancement including a coherent $\psi(4260)$ amplitude with mass and width from LIU 13B. Supersedes YUAN 08.

[2] From a fit of the broad $K^+ K^- J/\psi$ enhancement including a coherent $\psi(4260)$ amplitude with mass and width from YUAN 07.

$\Gamma(J/\psi K^0_S K^0_S) \times \Gamma(e^+ e^-)/\Gamma_{\text{total}}$ $\Gamma_7\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<0.85	90	[1] SHEN	14	BELL	9.4–10.9 $e^+ e^- \to \gamma K^0_S K^0_S J/\psi$

[1] From a fit of the $K^0_S K^0_S J/\psi$ mass range from 4.4 to 5.5 GeV including a coherent $\psi(4260)$ amplitude with mass and width from LIU 13B.

$\Gamma(J/\psi\eta) \times \Gamma(e^+ e^-)/\Gamma_{\text{total}}$ $\Gamma_8\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT

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

<14.2	90	WANG	13B	BELL	$e^+ e^- \to J/\psi\eta\gamma$

$\Gamma(\psi(2S)\pi^+\pi^-) \times \Gamma(e^+ e^-)/\Gamma_{\text{total}}$ $\Gamma_{14}\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT

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

<4.3	90	[1] LIU	08H	RVUE	10.58 $e^+ e^- \to \psi(2S)\pi^+\pi^-\gamma$
$7.4^{+2.1}_{-1.7}$		[2] LIU	08H	RVUE	10.58 $e^+ e^- \to \psi(2S)\pi^+\pi^-\gamma$

[1] For constructive interference with the $\psi(4360)$ in a combined fit of AUBERT 07S and WANG 07D data with three resonances.

[2] For destructive interference with the $\psi(4360)$ in a combined fit of AUBERT 07S and WANG 07D data with three resonances.

$\Gamma(\phi\pi^+\pi^-) \times \Gamma(e^+ e^-)/\Gamma_{\text{total}}$ $\Gamma_{20}\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<0.4	90	AUBERT,BE	06D	BABR	10.6 $e^+ e^- \to K^+ K^- \pi^+ \pi^- \gamma$

$\Gamma(\phi f_0(980) \to \phi\pi^+\pi^-) \times \Gamma(e^+ e^-)/\Gamma_{\text{total}}$ $\Gamma_{21}\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<0.28	90	[1] AUBERT	07AK	BABR	10.6 $e^+ e^- \to \pi^+\pi^- K^+ K^- \gamma$

[1] AUBERT 07AK reports $[\Gamma(\psi(4260) \to \phi f_0(980) \to \phi\pi^+\pi^-) \times \Gamma(\psi(4260) \to e^+ e^-)/\Gamma_{\text{total}}] \times [\text{B}(\phi(1020) \to K^+ K^-)] <$ 0.14 eV which we divide by our best value $\text{B}(\phi(1020) \to K^+ K^-) = 49.2 \times 10^{-2}$.

$\Gamma(K^0_S K^\pm \pi^\mp) \times \Gamma(e^+ e^-)/\Gamma_{\text{total}}$ $\Gamma_{42}\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT

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

<0.5	90	AUBERT	08S	BABR	10.6 $e^+ e^- \to K^0_S K^\pm \pi^\mp \gamma$

$\Gamma(K^+K^-\pi^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{43}\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.6	90	AUBERT	08S	BABR	10.6 $e^+e^- \to K^+K^-\pi^0\gamma$

$\Gamma(\chi_{c1}\gamma) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{45}\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<1.4	90	[1] HAN	15	BELL	10.58 $e^+e^- \to \chi_{c1}\gamma$

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

$\Gamma(\chi_{c2}\gamma) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{46}\Gamma_1/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<4.0	90	[1] HAN	15	BELL	10.58 $e^+e^- \to \chi_{c2}\gamma$

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

$\psi(4260)$ BRANCHING RATIOS

$\Gamma(J/\psi f_0(980),\ f_0(980) \to \pi^+\pi^-)/\Gamma(J/\psi\pi^+\pi^-)$ Γ_3/Γ_2

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.17±0.13	[1] LEES	12AC	BABR	10.58 $e^+e^- \to \gamma\pi^+\pi^- J/\psi$

[1] Systematic uncertainties not estimated.

$\Gamma(Z_c(3900)^\pm\pi^\mp,\ Z_c^\pm \to J/\psi\pi^\pm)/\Gamma(J/\psi\pi^+\pi^-)$ Γ_4/Γ_2

VALUE	DOCUMENT ID		TECN	COMMENT
0.215±0.033±0.075	[1] ABLIKIM	13T	BES3	$e^+e^- \to \pi^+\pi^- J/\psi$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.29 ±0.08	[2] LIU	13B	BELL	$e^+e^- \to \gamma\pi^+\pi^- J/\psi$

[1] Assuming that the cross section of $e^+e^- \to \pi^+\pi^- J/\psi$ is fully due to the $\psi(4260)$.
[2] Systematic error not evaluated.

$\Gamma(J/\psi K_S^0 K_S^0)/\Gamma_{total}$ Γ_7/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	SHEN	14	BELL	9.4–10.9 $e^+e^- \to \gamma K_S^0 K_S^0 J/\psi$

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

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	ABLIKIM	15Q	BES3	4.0–4.6 $e^+e^- \to J/\psi\eta\pi^0$

$\Gamma(\psi(2S)\pi^+\pi^-)/\Gamma(J/\psi\pi^+\pi^-)$ Γ_{14}/Γ_2

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
(0.11±0.03±0.03) to (0.55± 0.18 ± 0.19)	[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.

$\Gamma(h_c(1P)\pi^+\pi^-)/\Gamma(J/\psi\pi^+\pi^-)$ Γ_{19}/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.0	90	[1] PEDLAR	11	CLEO	$e^+e^- \to h_c(1P)\pi^+\pi^-$

[1] At $\sqrt{s} = 4260$ MeV, PEDLAR 11 measures $\sigma(e^+e^- \to h_c(1P)\pi^+\pi^-) = 32 \pm 17 \pm 6 \pm 6$ pb, where the errors are statistical, systematic, and due to uncertainty in $B(\psi(2S) \to \pi^0 h_c(1P))$, respectively.

$\Gamma(D\overline{D})/\Gamma(J/\psi\pi^+\pi^-)$ Γ_{22}/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.0	90	[1] AUBERT	07BE	BABR	$e^+e^- \to D\overline{D}\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<4.0	90	CRONIN-HEN..	09	CLEO	e^+e^-

[1] Using 4259 ± 10 MeV for the mass and 88 ± 24 MeV for the width of $\psi(4260)$.

$\Gamma(D^0\overline{D}^0)/\Gamma_{total}$ Γ_{23}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	CRONIN-HEN..	09	CLEO	$e^+e^- \to D^0\overline{D}^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
not seen	AUBERT	09M	BABR	$e^+e^- \to D^0\overline{D}^0\gamma$
not seen	PAKHLOVA	08	BELL	$e^+e^- \to D^0\overline{D}^0\gamma$

$\Gamma(D^+D^-)/\Gamma_{total}$ Γ_{24}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	CRONIN-HEN..	09	CLEO	$e^+e^- \to D^+D^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
not seen	AUBERT	09M	BABR	$e^+e^- \to D^+D^-\gamma$
not seen	PAKHLOVA	08	BELL	$e^+e^- \to D^+D^-\gamma$

$\Gamma(D^*\overline{D}+\text{c.c.})/\Gamma(J/\psi\pi^+\pi^-)$ Γ_{25}/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<34	90	AUBERT	09M	BABR	$e^+e^- \to \gamma D^*\overline{D}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<45	90	CRONIN-HEN..	09	CLEO	e^+e^-

$\Gamma(D^*(2007)^0\overline{D}^0+\text{c.c.})/\Gamma_{total}$ Γ_{26}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	CRONIN-HEN..	09	CLEO	$e^+e^- \to D^{*0}\overline{D}^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
not seen	AUBERT	09M	BABR	$e^+e^- \to D^{*0}\overline{D}^0\gamma$

$\Gamma(D^*(2010)^+D^-+\text{c.c.})/\Gamma_{total}$ Γ_{27}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	CRONIN-HEN..	09	CLEO	$e^+e^- \to D^{*+}D^-$
not seen	PAKHLOVA	07	BELL	$e^+e^- \to D^{*+}D^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
not seen	AUBERT	09M	BABR	$e^+e^- \to D^{*+}D^-\gamma$

$\Gamma(D^*\overline{D}^*)/\Gamma(J/\psi\pi^+\pi^-)$ Γ_{28}/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<11	90	CRONIN-HEN..	09	CLEO	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<40	90	AUBERT	09M	BABR	$e^+e^- \to \gamma D^*\overline{D}^*$

$\Gamma(D^*(2007)^0\overline{D}^*(2007)^0)/\Gamma_{\text{total}}$ Γ_{29}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	CRONIN-HEN..	09	CLEO	$e^+e^- \to D^{*0}\overline{D}^{*0}$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
not seen	AUBERT	09M	BABR	$e^+e^- \to D^{*0}\overline{D}^{*0}\gamma$

$\Gamma(D^*(2010)^+D^*(2010)^-)/\Gamma_{\text{total}}$ Γ_{30}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	CRONIN-HEN..	09	CLEO	$e^+e^- \to D^{*+}D^{*-}$
not seen	PAKHLOVA	07	BELL	$e^+e^- \to D^{*+}D^{*-}\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
not seen	AUBERT	09M	BABR	$e^+e^- \to D^{*+}D^{*-}\gamma$

$\Gamma(D^0D^-\pi^+ + \text{c.c. (excl. } D^*(2007)^0\overline{D}^{*0} + \text{c.c., } D^*(2010)^+D^- + \text{c.c.)})/\Gamma_{\text{total}}$ Γ_{32}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	PAKHLOVA	08A	BELL	10.6 $e^+e^- \to D^0D^-\pi^+\gamma$

$\Gamma(D\overline{D}^*\pi + \text{c.c. (excl. } D^*\overline{D}^*))/\Gamma_{\text{total}}$ Γ_{33}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	CRONIN-HEN..	09	CLEO	$e^+e^- \to D^*\overline{D}\pi$

$\Gamma(D\overline{D}^*\pi + \text{c.c. (excl. } D^*\overline{D}^*))/\Gamma(J/\psi\pi^+\pi^-)$ Γ_{33}/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<15	90	CRONIN-HEN..	09	CLEO	e^+e^-

$\Gamma(D^0D^{*-}\pi^+ + \text{c.c. (excl. } D^*(2010)^+D^*(2010)^-))/\Gamma_{\text{total}}$ Γ_{34}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	PAKHLOVA	09	BELL	$e^+e^- \to D^0D^{*-}\pi^+\gamma$

$\Gamma(D^0D^*(2010)^-\pi^+ + \text{c.c.})/\Gamma(J/\psi\pi^+\pi^-)$ Γ_{35}/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<9	90	PAKHLOVA	09	BELL	$e^+e^- \to D^0D^{*-}\pi^+$

$\Gamma(D^0D^*(2010)^-\pi^+ + \text{c.c.})/\Gamma_{\text{total}} \times \Gamma(e^+e^-)/\Gamma_{\text{total}}$ $\Gamma_{35}/\Gamma \times \Gamma_1/\Gamma$

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<0.42 \times 10^{-6}$	90	[1] PAKHLOVA	09	BELL	$e^+e^- \to D^0D^{*-}\pi^+$

[1] Using 4263^{+8}_{-9} MeV for the mass of $\psi(4260)$.

$\Gamma(D^*\overline{D}^*\pi)/\Gamma_{\text{total}}$ Γ_{36}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
not seen	CRONIN-HEN..09	CLEO	$e^+e^- \to D^*\overline{D}^*\pi$

$\Gamma(D^*\overline{D}^*\pi)/\Gamma(J/\psi\pi^+\pi^-)$ Γ_{36}/Γ_2

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<8.2	90	CRONIN-HEN..09	CLEO	e^+e^-

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

VALUE	DOCUMENT ID	TECN	COMMENT
not seen	DEL-AMO-SA..10N	BABR	$e^+e^- \to D_s^+D_s^-\gamma$
not seen	CRONIN-HEN..09	CLEO	$e^+e^- \to D_s^+D_s^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
not seen	PAKHLOVA 11	BELL	$e^+e^- \to D_s^+D_s^-\gamma$

$\Gamma(D_s^+D_s^-)/\Gamma(J/\psi\pi^+\pi^-)$ Γ_{37}/Γ_2

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<0.7	95	DEL-AMO-SA..10N	BABR	10.6 e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<1.3	90	CRONIN-HEN..09	CLEO	e^+e^-

$\Gamma(D_s^{*+}D_s^- + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{38}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
not seen	DEL-AMO-SA..10N	BABR	$e^+e^- \to D_s^{*+}D_s^-\gamma$
not seen	CRONIN-HEN..09	CLEO	$e^+e^- \to D_s^{*+}D_s^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
not seen	PAKHLOVA 11	BELL	$e^+e^- \to D_s^{*+}D_s^-\gamma$

$\Gamma(D_s^{*+}D_s^- + \text{c.c.})/\Gamma(J/\psi\pi^+\pi^-)$ Γ_{38}/Γ_2

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
< 0.8	90	CRONIN-HEN..09	CLEO	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<44	95	DEL-AMO-SA..10N	BABR	10.6 e^+e^-

$\Gamma(D_s^{*+}D_s^{*-})/\Gamma_{\text{total}}$ Γ_{39}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
not seen	CRONIN-HEN..09	CLEO	$e^+e^- \to D_s^{*+}D_s^{*-}$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
not seen	PAKHLOVA 11	BELL	$e^+e^- \to D_s^{*+}D_s^{*-}\gamma$
not seen	DEL-AMO-SA..10N	BABR	$e^+e^- \to D_s^{*+}D_s^{*-}\gamma$

$\Gamma(D_s^{*+}D_s^{*-})/\Gamma(J/\psi\pi^+\pi^-)$ Γ_{39}/Γ_2

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
< 9.5	90	CRONIN-HEN..09	CLEO	e^+e^-
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<30	95	DEL-AMO-SA..10N	BABR	10.6 e^+e^-

$\Gamma(p\overline{p})/\Gamma(J/\psi\pi^+\pi^-)$ Γ_{40}/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.13	90	[1] AUBERT	06B	BABR	$e^+e^- \to p\overline{p}\gamma$

[1] Using 4259 ± 10 MeV for the mass and 88 ± 24 MeV for the width of $\psi(4260)$.

$\Gamma(p\overline{p}\pi^0)/\Gamma(J/\psi\pi^+\pi^-)$ Γ_{41}/Γ_2

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2\times10^{-4}$	90	ABLIKIM	17F	BES3	$e^+e^- \to \psi(4260) \to$ hadrons

Radiative decays

$\Gamma(\eta_c(1S)\gamma)/\Gamma_{\text{total}}$ Γ_{44}/Γ

VALUE	DOCUMENT ID		COMMENT
possibly seen	[1] ABLIKIM	17W	$e^+e^- \to \gamma\eta_c(1S)$

[1] Significance ranges from 4.2 σ to as low as 1.5 σ for a flat component plus $\psi(4260)$ spectrum. Needs confirmation.

$\Gamma(\chi_{c1}(3872)\gamma)/\Gamma_{\text{total}}$ Γ_{47}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
seen	20 ± 5	ABLIKIM	14	BES3	$e^+e^- \to J/\psi\pi^+\pi^-\gamma$

$\psi(4260)$ REFERENCES

ABLIKIM	17B	PRL 118 092001	M. Ablikim *et al.*	(BES III Collab.)
ABLIKIM	17F	PL B771 45	M. Ablikim *et al.*	(BES III Collab.)
ABLIKIM	17W	PR D96 051101	M. Ablikim *et al.*	(BES III Collab.)
ZHANG	17B	PR D96 054008	J. Zhang, J. Zhang	
ZHANG	17C	EPJ C77 727	J. Zhang, L. Yuan	
ABLIKIM	15Q	PR D92 012008	M. Ablikim *et al.*	(BES III Collab.)
HAN	15	PR D92 012011	Y.L. Han *et al.*	(BELLE Collab.)
ABLIKIM	14	PRL 112 092001	M. Ablikim *et al.*	(BES III Collab.)
SHEN	14	PR D89 072015	C.P. Shen *et al.*	(BELLE Collab.)
ABLIKIM	13T	PRL 110 252001	M. Ablikim *et al.*	(BES III Collab.)
LIU	13B	PRL 110 252002	Z.Q. Liu *et al.*	(BELLE Collab.)
WANG	13B	PR D87 051101	X.L. Wang *et al.*	(BELLE Collab.)
LEES	12AC	PR D86 051102	J.P. Lees *et al.*	(BABAR Collab.)
PAKHLOVA	11	PR D83 011101	G. Pakhlova *et al.*	(BELLE Collab.)
PEDLAR	11	PRL 107 041803	T. Pedlar *et al.*	(CLEO Collab.)
DEL-AMO-SA...	10N	PR D82 052004	P. del Amo Sanchez *et al.*	(BABAR Collab.)
AUBERT	09M	PR D79 092001	B. Aubert *et al.*	(BABAR Collab.)
CRONIN-HEN...	09	PR D80 072001	D. Cronin-Hennessy *et al.*	(CLEO Collab.)
PAKHLOVA	09	PR D80 091101	G. Pakhlova *et al.*	(BELLE Collab.)
AUBERT	08S	PR D77 092002	B. Aubert *et al.*	(BABAR Collab.)
LIU	08H	PR D78 014032	Z.Q. Liu, X.S. Qin, C.Z. Yuan	
PAKHLOVA	08	PR D77 011103	G. Pakhlova *et al.*	(BELLE Collab.)
PAKHLOVA	08A	PRL 100 062001	G. Pakhlova *et al.*	(BELLE Collab.)
YUAN	08	PR D77 011105	C.Z. Yuan *et al.*	(BELLE Collab.)
AUBERT	07AK	PR D76 012008	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07BE	PR D76 111105	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07S	PRL 98 212001	B. Aubert *et al.*	(BABAR Collab.)
PAKHLOVA	07	PRL 98 092001	G. Pakhlova *et al.*	(BELLE Collab.)
WANG	07D	PRL 99 142002	X.L. Wang *et al.*	(BELLE Collab.)
YUAN	07	PRL 99 182004	C.Z. Yuan *et al.*	(BELLE Collab.)
AUBERT	06	PR D73 011101	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	06B	PR D73 012005	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,BE	06D	PR D74 091103	B. Aubert *et al.*	(BABAR Collab.)
COAN	06	PRL 96 162003	T.E. Coan *et al.*	(CLEO Collab.)
HE	06B	PR D74 091104	Q. He *et al.*	(CLEO Collab.)
AUBERT,B	05I	PRL 95 142001	B. Aubert *et al.*	(BABAR Collab.)