NODE=M025

$\psi(4160)$ [a]

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

[a] J^{PC} known by production in e^+e^- via single photon annihilation. I^G is not known; interpretation of this state as a single resonance is unclear because of the expectation of substantial threshold effects in this energy region.

LINKAGE=MPD

$\psi(4160)$ MASS

NODE=M025M

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
4191 ± 5 OUR AVERAGE				
4186.8± 8.7±30	[1] ABLIKIM	23BH	BES3	$e^+e^- \to D_s^{*+}D_s^{*-}$
4191 $^{+\ 9}_{-\ 8}$	AAIJ	13BC	LHCB	$B^+ \to K^+\mu^+\mu^-$
4191.7± 6.5	[2] ABLIKIM	08D	BES2	$e^+e^- \to$ hadrons
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4193 ± 7	[3] MO	10	RVUE	$e^+e^- \to$ hadrons
4151 ± 4	[4] SETH	05A	RVUE	$e^+e^- \to$ hadrons
4155 ± 5	[5] SETH	05A	RVUE	$e^+e^- \to$ hadrons
4159 ±20	BRANDELIK	78C	DASP	e^+e^-

NODE=M025M

NODE=M025M

OCCUR=2

[1] Could also be the $\psi(4230)$.

NODE=M025M;LINKAGE=B

[2] Reanalysis of data presented in BAI 02C. From a global fit over the center-of-mass energy region 3.7–5.0 GeV covering the $\psi(3770)$, $\psi(4040)$, $\psi(4160)$, and $\psi(4415)$ resonances. Phase angle fixed in the fit to $\delta = (293 \pm 57)^\circ$.

NODE=M025M;LINKAGE=AB

[3] Reanalysis of data presented in BAI 00 and BAI 02C. From a global fit over the center-of-mass energy 3.8-4.8 GeV covering the $\psi(4040)$, $\psi(4160)$ and $\psi(4415)$ resonances and including interference effects.

NODE=M025M;LINKAGE=MO

[4] From a fit to Crystal Ball (OSTERHELD 86) data.

NODE=M025M;LINKAGE=ST

[5] From a fit to BES (BAI 02C) data.

NODE=M025M;LINKAGE=SE

$\psi(4160)$ WIDTH

NODE=M025W

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
69 ±10 OUR AVERAGE				
55 ±15 ±53	[1] ABLIKIM	23BH	BES3	$e^+e^- \to D_s^{*+}D_s^{*-}$
65 $^{+22}_{-16}$	AAIJ	13BC	LHCB	$B^+ \to K^+\mu^+\mu^-$
71.8±12.3	[2] ABLIKIM	08D	BES2	$e^+e^- \to$ hadrons
• • • We do not use the following data for averages, fits, limits, etc. • • •				
79 ±14	[3] MO	10	RVUE	$e^+e^- \to$ hadrons
107 ±10	[4] SETH	05A	RVUE	$e^+e^- \to$ hadrons
107 ±16	[5] SETH	05A	RVUE	$e^+e^- \to$ hadrons
78 ±20	BRANDELIK	78C	DASP	e^+e^-

NODE=M025W

OCCUR=2

[1] Could also be the $\psi(4230)$.

NODE=M025W;LINKAGE=B

[2] Reanalysis of data presented in BAI 02C. From a global fit over the center-of-mass energy region 3.7–5.0 GeV covering the $\psi(3770)$, $\psi(4040)$, $\psi(4160)$, and $\psi(4415)$ resonances. Phase angle fixed in the fit to $\delta = (293 \pm 57)^\circ$.

NODE=M025W;LINKAGE=AB

[3] Reanalysis of data presented in BAI 00 and BAI 02C. From a global fit over the center-of-mass energy 3.8-4.8 GeV covering the $\psi(4040)$, $\psi(4160)$ and $\psi(4415)$ resonances and including interference effects.

NODE=M025W;LINKAGE=MO

[4] From a fit to Crystal Ball (OSTERHELD 86) data.

NODE=M025W;LINKAGE=ST

[5] From a fit to BES (BAI 02C) data.

NODE=M025W;LINKAGE=SE

$\psi(4160)$ DECAY MODES

NODE=M025215;NODE=M025

Due to the complexity of the $c\overline{c}$ threshold region, in this listing, "seen" ("not seen") means that a cross section for the mode in question has been measured at effective $\sqrt{s}$ near this particle's central mass value, more

NODE=M025

(less) than 2σ above zero, without regard to any peaking behavior in $\sqrt{s}$ or absence thereof. See mode listing(s) for details and references.

	Mode	Fraction (Γ_i/Γ)	Confidence level	
Γ_1	e^+e^-	$(6.9 \pm 3.3) \times 10^{-6}$		DESIG=1
Γ_2	$\mu^+\mu^-$	seen		DESIG=33
Γ_3	$D\overline{D}$	seen		DESIG=15;OUR EVAL;→ UNCHECKED ←
Γ_4	$D^0\overline{D}^0$	seen		DESIG=16
Γ_5	D^+D^-	seen		DESIG=17
Γ_6	$D^*\overline{D}+$ c.c.	seen		DESIG=18;OUR EVAL;→ UNCHECKED ←
Γ_7	$D^*(2007)^0\overline{D}^0+$ c.c.	seen		DESIG=19
Γ_8	$D^*(2010)^+D^-+$ c.c.	seen		DESIG=20
Γ_9	$D^*\overline{D}^*$	seen		DESIG=21;OUR EVAL;→ UNCHECKED ←
Γ_{10}	$D^*(2007)^0\overline{D}^*(2007)^0$	seen		DESIG=22
Γ_{11}	$D^*(2010)^+D^*(2010)^-$	seen		DESIG=23
Γ_{12}	$D^0D^-\pi^+$+c.c. (excl. $D^*(2010)^+D^-$ +c.c.)	not seen		DESIG=24
Γ_{13}	$D\overline{D}^*\pi$+c.c. (excl. $D^*\overline{D}^*$)	seen		DESIG=25
Γ_{14}	$D^0D^{*-}\pi^+$+c.c. (excl. $D^*(2010)^+D^*(2010)^-$)	not seen		DESIG=26
Γ_{15}	$D_s^+D_s^-$	not seen		DESIG=27
Γ_{16}	$D_s^{*+}D_s^-$+c.c.	seen		DESIG=28
Γ_{17}	$J/\psi\pi^+\pi^-$	< 3	$\times 10^{-3}$ 90%	DESIG=2
Γ_{18}	$J/\psi\pi^0\pi^0$	< 3	$\times 10^{-3}$ 90%	DESIG=3
Γ_{19}	$J/\psi K^+K^-$	< 2	$\times 10^{-3}$ 90%	DESIG=4
Γ_{20}	$J/\psi\eta$	< 8	$\times 10^{-3}$ 90%	DESIG=5
Γ_{21}	$J/\psi\pi^0$	< 1	$\times 10^{-3}$ 90%	DESIG=6
Γ_{22}	$J/\psi\eta'$	< 5	$\times 10^{-3}$ 90%	DESIG=7
Γ_{23}	$J/\psi\pi^+\pi^-\pi^0$	< 1	$\times 10^{-3}$ 90%	DESIG=8
Γ_{24}	$\psi(2S)\pi^+\pi^-$	< 4	$\times 10^{-3}$ 90%	DESIG=9
Γ_{25}	$\chi_{c1}\gamma$	< 5	$\times 10^{-3}$ 90%	DESIG=10
Γ_{26}	$\chi_{c2}\gamma$	< 1.3	% 90%	DESIG=11
Γ_{27}	$\chi_{c1}\pi^+\pi^-\pi^0$	< 2	$\times 10^{-3}$ 90%	DESIG=12
Γ_{28}	$\chi_{c2}\pi^+\pi^-\pi^0$	< 8	$\times 10^{-3}$ 90%	DESIG=13
Γ_{29}	$h_c(1P)\pi^+\pi^-$	< 5	$\times 10^{-3}$ 90%	DESIG=29
Γ_{30}	$h_c(1P)\pi^0\pi^0$	< 2	$\times 10^{-3}$ 90%	DESIG=30
Γ_{31}	$h_c(1P)\eta$	< 2	$\times 10^{-3}$ 90%	DESIG=31
Γ_{32}	$h_c(1P)\pi^0$	< 4	$\times 10^{-4}$ 90%	DESIG=32
Γ_{33}	$\omega\pi^+\pi^-$	seen		DESIG=49;OUR EVAL;→ UNCHECKED ←
Γ_{34}	$\phi\pi^+\pi^-$	< 2	$\times 10^{-3}$ 90%	DESIG=14
Γ_{35}	$\gamma\chi_{c1}(3872)$	< 1.6	$\times 10^{-3}$ 90%	DESIG=44
Γ_{36}	$\gamma\chi_{c0}(3915) \rightarrow \gamma J/\psi\pi^+\pi^-$	< 1.36	$\times 10^{-4}$ 90%	DESIG=35
Γ_{37}	$\gamma X(3930) \rightarrow \gamma J/\psi\pi^+\pi^-$	< 1.18	$\times 10^{-4}$ 90%	DESIG=36
Γ_{38}	$\gamma X(3940) \rightarrow \gamma J/\psi\pi^+\pi^-$	< 1.47	$\times 10^{-4}$ 90%	DESIG=37
Γ_{39}	$\gamma\chi_{c0}(3915) \rightarrow \gamma\gamma J/\psi$	< 1.26	$\times 10^{-4}$ 90%	DESIG=39
Γ_{40}	$\gamma X(3930) \rightarrow \gamma\gamma J/\psi$	< 8.8	$\times 10^{-5}$ 90%	DESIG=40
Γ_{41}	$\gamma X(3940) \rightarrow \gamma\gamma J/\psi$	< 1.79	$\times 10^{-4}$ 90%	DESIG=41
Γ_{42}	$\omega\pi^0$	not seen		DESIG=47
Γ_{43}	$\omega\eta$	not seen		DESIG=48
Γ_{44}	K^+K^-	not seen		DESIG=42;OUR EVAL;→ UNCHECKED ←
Γ_{45}	$K_S^0K^\pm\pi^\mp$	seen		DESIG=43;OUR EVAL;→ UNCHECKED ←
Γ_{46}	$p\overline{p}p\overline{p}$	not seen		DESIG=45
Γ_{47}	$\Lambda\overline{\Lambda}$	< 1.5	$\times 10^{-6}$ 90%	DESIG=46
Γ_{48}	$\Sigma^+\overline{\Sigma}^-$	< 2.0	$\times 10^{-4}$ 90%	DESIG=52
Γ_{49}	$\Xi^0\overline{\Xi}^0$	< 1.4	$\times 10^{-4}$ 90%	DESIG=55
Γ_{50}	$\Xi^-\overline{\Xi}^+$	< 8	$\times 10^{-5}$ 90%	DESIG=50
Γ_{51}	$pK^-\overline{\Lambda}+$ c.c.	< 6	$\times 10^{-6}$ 90%	DESIG=51
Γ_{52}	$\Lambda\overline{\Xi}^+K^-+$ c.c.	seen		DESIG=53;OUR EVAL;→ UNCHECKED ←
Γ_{53}	$\Sigma^0\overline{\Xi}^+K^-+$ c.c.	< 3.1	$\times 10^{-6}$ 90%	DESIG=54

$\psi(4160)$ PARTIAL WIDTHS

NODE=M025220

$\Gamma(e^+e^-)$ Γ_1

NODE=M025W1
NODE=M025W1

VALUE (keV)	DOCUMENT ID		TECN	COMMENT
0.48±0.22	[1] ABLIKIM	08D	BES2	$e^+e^- \to$ hadrons
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.4 to 1.1	[2] MO	10	RVUE	$e^+e^- \to$ hadrons
0.83±0.08	[3] SETH	05A	RVUE	$e^+e^- \to$ hadrons
0.84±0.13	[4] SETH	05A	RVUE	$e^+e^- \to$ hadrons
0.77±0.23	BRANDELIK	78C	DASP	e^+e^-

[1] Reanalysis of data presented in BAI 02C. From a global fit over the center-of-mass energy region 3.7–5.0 GeV covering the $\psi(3770)$, $\psi(4040)$, $\psi(4160)$, and $\psi(4415)$ resonances. Phase angle fixed in the fit to $\delta = (293 \pm 57)^\circ$.

[2] Reanalysis of data presented in BAI 00 and BAI 02C. From a global fit over the center-of-mass energy 3.8-4.8 GeV covering the $\psi(4040)$, $\psi(4160)$ and $\psi(4415)$ resonances and including interference effects. Four sets of solutions are obtained with the same fit quality, mass and total width, but with different e^+e^- partial widths. We quote only the range of values.

[3] From a fit to Crystal Ball (OSTERHELD 86) data.

[4] From a fit to BES (BAI 02C) data.

OCCUR=2

NODE=M025W1;LINKAGE=AB

NODE=M025W1;LINKAGE=MO

NODE=M025W1;LINKAGE=ST

NODE=M025W1;LINKAGE=SE

$\Gamma(\mu^+\mu^-)$ Γ_2

NODE=M025W2
NODE=M025W2

VALUE (keV)	DOCUMENT ID		TECN	COMMENT
2.45±1.24±0.94	[1,2] ABLIKIM	20AG	BES3	$e^+e^- \to \mu^+\mu^-$

[1] From a fit to the $e^+e^- \to \mu^+\mu^-$ cross section between 3.8 and 4.6 GeV to the coherent sum of four resonant amplitudes assuming $\Gamma(\mu^+\mu^-) = \Gamma(e^+e^-)$.

[2] From solution 1 of 8 with equal fit quality. Other solutions range from $2.08 \pm 0.99 \pm 0.80$ to $2.45 \pm 1.24 \pm 0.94$ keV.

NODE=M025W2;LINKAGE=A

NODE=M025W2;LINKAGE=B

$\psi(4160)$ $\Gamma(i) \times \Gamma(e^+e^-)/\Gamma(total)$

NODE=M025235

$\Gamma(J/\psi\eta') \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{22}\Gamma_1/\Gamma$

NODE=M025R42
NODE=M025R42

VALUE (eV)	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.17±0.04	86	[1,2] ABLIKIM	20A	BES3	$e^+e^- \to \eta' J/\psi$
1.07±0.09	86	[1,3] ABLIKIM	20A	BES3	$e^+e^- \to \eta' J/\psi$

[1] Based on a fit to $\sigma(e^+e^- \to \eta' J/\psi)$ from $\sqrt{s} = 4.18$ to 4.60 GeV assuming interfering $\psi(4160)$ and $\psi(4260)$ contributions. At $\sqrt{s} = 4.18$ GeV, $\sigma(e^+e^- \to \eta' J/\psi) = 2.4 \pm 0.3 \pm 0.2$ pb.

[2] Solution I of the fit, corresponding to a phase of -0.03 ± 0.44 rad.

[3] Solution II of the fit, corresponding to a phase of 2.54 ± 0.04 rad.

OCCUR=2

NODE=M025R42;LINKAGE=A

NODE=M025R42;LINKAGE=B

NODE=M025R42;LINKAGE=C

$\Gamma(\chi_{c1}\gamma) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{25}\Gamma_1/\Gamma$

NODE=M025G01
NODE=M025G01

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<2.2	90	[1] HAN	15	BELL	10.58 $e^+e^- \to \chi_{c1}\gamma$

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

NODE=M025G01;LINKAGE=A

$\Gamma(\chi_{c2}\gamma) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{26}\Gamma_1/\Gamma$

NODE=M025G02
NODE=M025G02

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<6.1	90	[1] HAN	15	BELL	10.58 $e^+e^- \to \chi_{c2}\gamma$

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

NODE=M025G02;LINKAGE=A

$\Gamma(\omega\pi^+\pi^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{33}\Gamma_1/\Gamma$

NODE=M025R48
NODE=M025R48

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.0011±0.0008±0.0001	[1,2] ABLIKIM	23AQ	BES3	fit to cross sections
0.651 ±0.012 ±0.040	[2,3] ABLIKIM	23AQ	BES3	fit to cross sections

[1] Solution I of the fit.

[2] From a fit to $e^+e^- \to \omega\pi^+\pi^-$ cross sections between 4 and 4.6 GeV. Recalculated from 12 π $\Gamma(e^+e^-)$ $B(\psi(4230) \to \omega\pi^+\pi^-)$. First uncertainty is from statistical and uncommon systematic uncertainties, and the second is a 6.2% common systematic uncertainty quoted in the paper.

[3] Solution II of the fit.

OCCUR=3

OCCUR=4

NODE=M025R48;LINKAGE=A

NODE=M025R48;LINKAGE=C

NODE=M025R48;LINKAGE=B

$\Gamma(K^0_S K^\pm\pi^\mp) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{45}\Gamma_1/\Gamma$

NODE=M025R00
NODE=M025R00

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
2.71 ±0.13 ±0.12	[1] ABLIKIM	19AE	BES3	$e^+e^- \to K^0_S K^\pm\pi^\mp$
0.0095±0.0088±0.0004	[2] ABLIKIM	19AE	BES3	$e^+e^- \to K^0_S K^\pm\pi^\mp$ OCCUR=5

[1] Solution I of the fit including the $\psi(4160)$ with mass 4191 ± 5 MeV and width 70 ± 10 MeV from PDG 16 and the $\psi(4230)$ with mass 4219.6 ± 3.3 ± 5.1 MeV and width 56.0 ± 3.6 ± 6.9 MeV from GAO 17. NODE=M025R00;LINKAGE=A

[2] Solution II of the fit including the $\psi(4160)$ with mass 4191 ± 5 MeV and width 70 ± 10 MeV from PDG 16 and the $\psi(4230)$ with mass 4219.6 ± 3.3 ± 5.1 MeV and width 56.0 ± 3.6 ± 6.9 MeV from GAO 17. NODE=M025R00;LINKAGE=D

$\Gamma(\Lambda\overline{\Lambda}) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{47}\Gamma_1/\Gamma$

NODE=M025R45
NODE=M025R45

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<0.7 × 10⁻³	90	[1] ABLIKIM	21AS	BES3	$e^+e^- \to \psi(4160)$

[1] From a measurement of the $e^+e^- \to \Lambda\overline{\Lambda}$ cross section between 3.5 and 4.6 GeV. NODE=M025R45;LINKAGE=A

$\Gamma(\Sigma^+\overline{\Sigma}^-) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{48}\Gamma_1/\Gamma$

NODE=M025R52
NODE=M025R52

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<94.6 × 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=M025R52;LINKAGE=A

$\Gamma(\Xi^0\overline{\Xi}^0) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{49}\Gamma_1/\Gamma$

NODE=M025R55
NODE=M025R55

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<69.0 × 10⁻³	90	[1] ABLIKIM	24CD	BES3	$e^+e^- \to \psi(4160)$

[1] From a fit to $e^+e^- \to \Xi^0\overline{\Xi}^0$ cross sections. NODE=M025R55;LINKAGE=A

$\Gamma(\Xi^-\overline{\Xi}^+) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{50}\Gamma_1/\Gamma$

NODE=M025R49
NODE=M025R49

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<37.2 × 10⁻³	90	[1] ABLIKIM	23BK	BES3	$e^+e^- \to \psi(4160)$

[1] From a fit to $e^+e^- \to \Xi^-\overline{\Xi}^+$ cross sections. NODE=M025R49;LINKAGE=A

$\Gamma(pK^-\overline{\Lambda}+\text{c.c.}) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{51}\Gamma_1/\Gamma$

NODE=M025R51
NODE=M025R51

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<3.0 × 10⁻³	90	[1] ABLIKIM	23BL	BES3	$e^+e^- \to \psi(4160)$

[1] From a fit to $e^+e^- \to pK^-\overline{\Lambda}+$ c.c. cross sections. NODE=M025R51;LINKAGE=A

$\Gamma(\Lambda\overline{\Xi}^+K^-+\text{c.c.}) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{52}\Gamma_1/\Gamma$

NODE=M025R53
NODE=M025R53

VALUE (10^{-3} eV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
2.1±0.2	[1] ABLIKIM	24AL	BES3	$e^+e^- \to \Lambda\overline{\Xi}^+K^-$ + c.c.
1.5±0.4	[2] ABLIKIM	24AL	BES3	$e^+e^- \to \Lambda\overline{\Xi}^+K^-$ + c.c. OCCUR=2

[1] A fit to the Born cross section of $e^+e^- \to \Lambda\overline{\Xi}^+K^-$ + c.c. including interference with the continuum. Significance is 4.4σ. Solution 1 of 2. NODE=M025R53;LINKAGE=A

[2] A fit to the Born cross section of $e^+e^- \to \Lambda\overline{\Xi}^+K^-$ + c.c. including interference with the continuum. Significance is 4.4σ. Solution 2 of 2. NODE=M025R53;LINKAGE=B

$\Gamma(\Sigma^0\overline{\Xi}^+K^-+\text{c.c.}) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{53}\Gamma_1/\Gamma$

NODE=M025R54
NODE=M025R54

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<1.5 × 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=M025R54;LINKAGE=A

$\psi(4160)$ Γ(i) × $\Gamma(e^+e^-)/\Gamma^2$(total)

NODE=M025230

$\Gamma(J/\psi\eta)/\Gamma_{total} \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{20}/\Gamma \times \Gamma_1/\Gamma$

NODE=M025R32
NODE=M025R32

VALUE (units 10^{-8})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
2.8±0.9±0.9	[1] WANG	13B	BELL	$e^+e^- \to J/\psi\eta\gamma$
12.8±1.7±2.0	[2] WANG	13B	BELL	$e^+e^- \to J/\psi\eta\gamma$ OCCUR=2

[1] Solution I of two equivalent solutions in a fit using two interfering resonances. Mass and width fixed at 4153 MeV and 103 MeV, respectively. NODE=M025R32;LINKAGE=A

[2] Solution II of two equivalent solutions in a fit using two interfering resonances. Mass and width fixed at 4153 MeV and 103 MeV, respectively. NODE=M025R32;LINKAGE=B

$\psi(4160)$ BRANCHING RATIOS

NODE=M025225

$\Gamma(\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_2/Γ

NODE=M025R31
NODE=M025R31

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[1] AAIJ	13BC	LHCB	$B^+ \to K^+\mu^+\mu^-$

[1] AAIJ 13BC report $B(B^+ \to K^+\psi(4160))\, B(\psi(4160) \to \mu^+\mu^-) = (3.5^{+0.9}_{-0.8})\times10^{-9}$.

NODE=M025R31;LINKAGE=A

$\Gamma(D\overline{D})/\Gamma(D^*\overline{D}^*)$ Γ_3/Γ_9

NODE=M025R14
NODE=M025R14

VALUE	DOCUMENT ID		TECN	COMMENT
0.02±0.03±0.02	AUBERT	09M	BABR	$e^+e^- \to \gamma D^{(*)}\overline{D}^{(*)}$

$\Gamma(D^0\overline{D}^0)/\Gamma_{\text{total}}$ Γ_4/Γ

NODE=M025R16
NODE=M025R16

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[1] ABLIKIM	24BH	BES3	$e^+e^- \to D^0\overline{D}^0$
seen	CRONIN-HEN..09		CLEO	$e^+e^- \to D^0\overline{D}^0$
seen	PAKHLOVA	08	BELL	$e^+e^- \to D^0\overline{D}^0\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
not seen	AUBERT	09M	BABR	$e^+e^- \to D^0\overline{D}^0\gamma$

[1] A precision measurement of the $e^+e^- \to D^0\overline{D}^0$ cross section shows complex structure in this mass region.

NODE=M025R16;LINKAGE=A

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

NODE=M025R17
NODE=M025R17

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[1] ABLIKIM	24BH	BES3	$e^+e^- \to D^+D^-$
seen	CRONIN-HEN..09		CLEO	$e^+e^- \to D^+D^-$
seen	PAKHLOVA	08	BELL	$e^+e^- \to D^+D^-\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
not seen	AUBERT	09M	BABR	$e^+e^- \to D^+D^-\gamma$

[1] A precision measurement of the $e^+e^- \to D^+D^-$ cross section shows complex structure in this mass region.

NODE=M025R17;LINKAGE=A

$\Gamma(D^*(2007)^0\overline{D}^0 + \text{c.c.})/\Gamma_{\text{total}}$ Γ_7/Γ

NODE=M025R18
NODE=M025R18

VALUE	DOCUMENT ID		TECN	COMMENT
seen	AUBERT	09M	BABR	$e^+e^- \to D^{*0}\overline{D}^0\gamma$
seen	CRONIN-HEN..09		CLEO	$e^+e^- \to D^{*0}\overline{D}^0$

$\Gamma(D^*(2010)^+D^- + \text{c.c.})/\Gamma_{\text{total}}$ Γ_8/Γ

NODE=M025R19
NODE=M025R19

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[1] ZHUKOVA	18	BELL	$e^+e^- \to D^{*+}D^-\gamma$
seen	AUBERT	09M	BABR	$e^+e^- \to D^{*+}D^-\gamma$
seen	CRONIN-HEN..09		CLEO	$e^+e^- \to D^{*+}D^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
seen	PAKHLOVA	07	BELL	$e^+e^- \to D^{*+}D^-\gamma$

[1] Supersedes PAKHLOVA 07.

NODE=M025R19;LINKAGE=A

$\Gamma(D^*\overline{D} + \text{c.c.})/\Gamma(D^*\overline{D}^*)$ Γ_6/Γ_9

NODE=M025R15
NODE=M025R15

VALUE	DOCUMENT ID		TECN	COMMENT
0.34±0.14±0.05	AUBERT	09M	BABR	$e^+e^- \to \gamma D^{(*)}\overline{D}^{(*)}$

$\Gamma(D^*(2007)^0\overline{D}^*(2007)^0)/\Gamma_{\text{total}}$ Γ_{10}/Γ

NODE=M025R20
NODE=M025R20

VALUE	DOCUMENT ID		TECN	COMMENT
seen	AUBERT	09M	BABR	$e^+e^- \to D^{*0}\overline{D}^{*0}\gamma$
seen	CRONIN-HEN..09		CLEO	$e^+e^- \to D^{*0}\overline{D}^{*0}$

$\Gamma(D^*(2010)^+D^*(2010)^-)/\Gamma_{\text{total}}$ Γ_{11}/Γ

NODE=M025R21
NODE=M025R21

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[1] ZHUKOVA	18	BELL	$e^+e^- \to D^{*+}D^{*-}\gamma$
seen	AUBERT	09M	BABR	$e^+e^- \to D^{*+}D^{*-}\gamma$
seen	CRONIN-HEN..09		CLEO	$e^+e^- \to D^{*+}D^{*-}$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
seen	PAKHLOVA	07	BELL	$e^+e^- \to D^{*+}D^{*-}\gamma$

[1] Supersedes PAKHLOVA 07.

NODE=M025R21;LINKAGE=A

$\Gamma(D^0 D^- \pi^+ + \text{c.c. (excl. } D^*(2010)^+ D^- + \text{c.c.}))/\Gamma_{\text{total}}$ Γ_{12}/Γ

NODE=M025R22
NODE=M025R22

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

$\Gamma(D\overline{D}{}^*\pi + \text{c.c. (excl. } D^*\overline{D}{}^*))/\Gamma_{\text{total}}$ Γ_{13}/Γ

NODE=M025R23
NODE=M025R23

VALUE	DOCUMENT ID		TECN	COMMENT
seen	CRONIN-HEN..	09	CLEO	$e^+ e^- \to D\overline{D}{}^*\pi$

$\Gamma(D^0 D^{*-} \pi^+ + \text{c.c. (excl. } D^*(2010)^+ D^*(2010)^-))/\Gamma_{\text{total}}$ Γ_{14}/Γ

NODE=M025R24
NODE=M025R24

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

$\Gamma(D_s^+ D_s^-)/\Gamma_{\text{total}}$ Γ_{15}/Γ

NODE=M025R25
NODE=M025R25

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	PAKHLOVA	11	BELL	$e^+ e^- \to D_s^+ D_s^- \gamma$
not seen	DEL-AMO-SA..	10N	BABR	$e^+ e^- \to D_s^+ D_s^- \gamma$
not seen	CRONIN-HEN..	09	CLEO	$e^+ e^- \to D_s^+ D_s^-$

$\Gamma(D_s^{*+} D_s^- + \text{c.c.})/\Gamma_{\text{total}}$ Γ_{16}/Γ

NODE=M025R26
NODE=M025R26

VALUE	DOCUMENT ID		TECN	COMMENT
seen	PAKHLOVA	11	BELL	$e^+ e^- \to D_s^{*+} D_s^- \gamma$
seen	DEL-AMO-SA..	10N	BABR	$e^+ e^- \to D_s^{*+} D_s^- \gamma$
seen	CRONIN-HEN..	09	CLEO	$e^+ e^- \to D_s^{*+} D_s^-$

$\Gamma(J/\psi\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{17}/Γ

NODE=M025R01
NODE=M025R01

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<3	90	COAN	06	CLEO	4.12–4.2 $e^+ e^- \to$ hadrons

$\Gamma(J/\psi\pi^0\pi^0)/\Gamma_{\text{total}}$ Γ_{18}/Γ

NODE=M025R02
NODE=M025R02

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<3	90	COAN	06	CLEO	4.12–4.2 $e^+ e^- \to$ hadrons

$\Gamma(J/\psi K^+ K^-)/\Gamma_{\text{total}}$ Γ_{19}/Γ

NODE=M025R03
NODE=M025R03

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<2	90	COAN	06	CLEO	4.12–4.2 $e^+ e^- \to$ hadrons

$\Gamma(J/\psi\eta)/\Gamma_{\text{total}}$ Γ_{20}/Γ

NODE=M025R04
NODE=M025R04

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<8	90	COAN	06	CLEO	4.12–4.2 $e^+ e^- \to$ hadrons

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

possibly seen	[1] ABLIKIM	15L	BES3	$e^+ e^- \to J/\psi\eta$	
seen	WANG	13B	BELL	$e^+ e^- \to J/\psi\eta\gamma$	

[1] An enhancement around 4.2 GeV is observed. NODE=M025R04;LINKAGE=A

$\Gamma(J/\psi\pi^0)/\Gamma_{\text{total}}$ Γ_{21}/Γ

NODE=M025R05
NODE=M025R05

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<1	90	COAN	06	CLEO	4.12–4.2 $e^+ e^- \to$ hadrons

$\Gamma(J/\psi\eta')/\Gamma_{\text{total}}$ Γ_{22}/Γ

NODE=M025R06
NODE=M025R06

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<5	90	COAN	06	CLEO	4.12–4.2 $e^+ e^- \to$ hadrons

$\Gamma(J/\psi\pi^+\pi^-\pi^0)/\Gamma_{\text{total}}$ Γ_{23}/Γ

NODE=M025R07
NODE=M025R07

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<1	90	COAN	06	CLEO	4.12–4.2 $e^+ e^- \to$ hadrons

$\Gamma(\psi(2S)\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{24}/Γ

NODE=M025R08
NODE=M025R08

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<4	90	COAN	06	CLEO	4.12–4.2 $e^+ e^- \to$ hadrons

$\Gamma(\chi_{c1}\gamma)/\Gamma_{total}$ Γ_{25}/Γ

NODE=M025R09
NODE=M025R09

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<7	90	COAN	06	CLEO	4.12–4.2 $e^+e^- \to$ hadrons

$\Gamma(\chi_{c2}\gamma)/\Gamma_{total}$ Γ_{26}/Γ

NODE=M025R10
NODE=M025R10

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<13	90	COAN	06	CLEO	4.12–4.2 $e^+e^- \to$ hadrons

$\Gamma(\chi_{c1}\pi^+\pi^-\pi^0)/\Gamma_{total}$ Γ_{27}/Γ

NODE=M025R11
NODE=M025R11

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<2	90	COAN	06	CLEO	4.12–4.2 $e^+e^- \to$ hadrons

$\Gamma(\chi_{c2}\pi^+\pi^-\pi^0)/\Gamma_{total}$ Γ_{28}/Γ

NODE=M025R12
NODE=M025R12

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<8	90	COAN	06	CLEO	4.12–4.2 $e^+e^- \to$ hadrons

$\Gamma(h_c(1P)\pi^+\pi^-)/\Gamma_{total}$ Γ_{29}/Γ

NODE=M025R27
NODE=M025R27

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<5	90	[1] PEDLAR	11	CLEO	$e^+e^- \to h_c(1P)\pi^+\pi^-$

[1] At $\sqrt{s} = 4170$ MeV, PEDLAR 11 measures $\sigma(e^+e^- \to h_c(1P)\pi^+\pi^-) = 15.6 \pm 2.3 \pm 1.9 \pm 3.0$ pb, where the errors are statistical, systematic, and due to uncertainty in $B(\psi(2S) \to \pi^0 h_c(1P))$, respectively. NODE=M025R27;LINKAGE=PE

$\Gamma(h_c(1P)\pi^0\pi^0)/\Gamma_{total}$ Γ_{30}/Γ

NODE=M025R28
NODE=M025R28

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<2	90	[1] PEDLAR	11	CLEO	$e^+e^- \to h_c(1P)\pi^0\pi^0$

[1] At $\sqrt{s} = 4170$ MeV, PEDLAR 11 measures $\sigma(e^+e^- \to h_c(1P)\pi^0\pi^0) = 3.0 \pm 3.3 \pm 1.1 \pm 0.6$ pb, where the errors are statistical, systematic, and due to uncertainty in $B(\psi(2S) \to \pi^0 h_c(1P))$, respectively. NODE=M025R28;LINKAGE=PE

$\Gamma(h_c(1P)\eta)/\Gamma_{total}$ Γ_{31}/Γ

NODE=M025R29
NODE=M025R29

VALUE (units 10^{-3})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<2	90		[1] PEDLAR	11	CLEO	$e^+e^- \to h_c(1P)\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
possibly seen	41		[2] ABLIKIM	17R	BES3	$e^+e^- \to h_c(1P)\eta$

[1] At $\sqrt{s} = 4170$ MeV, PEDLAR 11 measures $\sigma(e^+e^- \to h_c(1P)\eta) = 4.7 \pm 1.7 \pm 1.0 \pm 0.9$ pb, where the errors are statistical, systematic, and due to uncertainty in $B(\psi(2S) \to \pi^0 h_c(1P))$, respectively. NODE=M025R29;LINKAGE=PE

[2] An enhancement around 4.2 GeV is observed. NODE=M025R29;LINKAGE=A

$\Gamma(h_c(1P)\pi^0)/\Gamma_{total}$ Γ_{32}/Γ

NODE=M025R30
NODE=M025R30

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<0.4	90	[1] PEDLAR	11	CLEO	$e^+e^- \to h_c(1P)\pi^0$

[1] At $\sqrt{s} = 4170$ MeV, PEDLAR 11 measures $\sigma(e^+e^- \to h_c(1P)\pi^0) = -0.7 \pm 1.8 \pm 0.7 \pm 0.1$ pb, where the errors are statistical, systematic, and due to uncertainty in $B(\psi(2S) \to \pi^0 h_c(1P))$, respectively. NODE=M025R30;LINKAGE=PE

$\Gamma(\phi\pi^+\pi^-)/\Gamma_{total}$ Γ_{34}/Γ

NODE=M025R13
NODE=M025R13

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<2	90	COAN	06	CLEO	4.12–4.2 $e^+e^- \to$ hadrons

$\Gamma(\gamma\chi_{c1}(3872))/\Gamma_{total}$ Γ_{35}/Γ

NODE=M025R43
NODE=M025R43

VALUE	CL%	DOCUMENT ID		COMMENT
<1.6 × 10^{-3}	90	[1,2] XIAO	13	$\psi(4160) \to \gamma J/\psi\pi^+\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.011	90	[1,3] XIAO	13	$\psi(4160) \to \gamma J/\psi\pi^+\pi^-$ OCCUR=2

[1] Obtained by analyzing CLEO data but not authored by the CLEO Collaboration. NODE=M025R43;LINKAGE=A

[2] XIAO 13 reports $[\Gamma(\psi(4160) \to \gamma\chi_{c1}(3872))/\Gamma_{total}] \times [B(\chi_{c1}(3872) \to \pi^+\pi^- J/\psi(1S))] < 0.68 \times 10^{-4}$ which we divide by our best value $B(\chi_{c1}(3872) \to \pi^+\pi^- J/\psi(1S)) = 4.3 \times 10^{-2}$. NODE=M025R43;LINKAGE=B

[3] XIAO 13 reports $[\Gamma(\psi(4160) \to \gamma\chi_{c1}(3872))/\Gamma_{total}] \times [B(\chi_{c1}(3872) \to \gamma J/\psi)] < 1.05 \times 10^{-4}$ which we divide by our best value $B(\chi_{c1}(3872) \to \gamma J/\psi) = 10 \times 10^{-3}$. NODE=M025R43;LINKAGE=C

$\Gamma(\gamma\chi_{c0}(3915)\to\gamma J/\psi\pi^+\pi^-)/\Gamma_{total}$ Γ_{36}/Γ

NODE=M025R35
NODE=M025R35

VALUE	CL%	DOCUMENT ID		COMMENT
$<1.36\times10^{-4}$	90	[1] XIAO	13	$\psi(4160)\to\ \gamma J/\psi\pi^+\pi^-$

[1] Obtained by analyzing CLEO data but not authored by the CLEO Collaboration.

NODE=M025R35;LINKAGE=A

$\Gamma(\gamma X(3930)\to\gamma J/\psi\pi^+\pi^-)/\Gamma_{total}$ Γ_{37}/Γ

NODE=M025R36
NODE=M025R36

VALUE	CL%	DOCUMENT ID		COMMENT
$<1.18\times10^{-4}$	90	[1] XIAO	13	$\psi(4160)\to\ \gamma J/\psi\pi^+\pi^-$

[1] Obtained by analyzing CLEO data but not authored by the CLEO Collaboration.

NODE=M025R36;LINKAGE=A

$\Gamma(\gamma X(3940)\to\gamma J/\psi\pi^+\pi^-)/\Gamma_{total}$ Γ_{38}/Γ

NODE=M025R37
NODE=M025R37

VALUE	CL%	DOCUMENT ID		COMMENT
$<1.47\times10^{-4}$	90	[1] XIAO	13	$\psi(4160)\to\ \gamma J/\psi\pi^+\pi^-$

[1] Obtained by analyzing CLEO data but not authored by the CLEO Collaboration.

NODE=M025R37;LINKAGE=A

$\Gamma(\gamma\chi_{c0}(3915)\to\gamma\gamma J/\psi)/\Gamma_{total}$ Γ_{39}/Γ

NODE=M025R39
NODE=M025R39

VALUE	CL%	DOCUMENT ID		COMMENT
$<1.26\times10^{-4}$	90	[1] XIAO	13	$\psi(4160)\to\ \gamma\gamma J/\psi$

[1] Obtained by analyzing CLEO data but not authored by the CLEO Collaboration.

NODE=M025R39;LINKAGE=A

$\Gamma(\gamma X(3930)\to\gamma\gamma J/\psi)/\Gamma_{total}$ Γ_{40}/Γ

NODE=M025R40
NODE=M025R40

VALUE	CL%	DOCUMENT ID		COMMENT
$<0.88\times10^{-4}$	90	[1] XIAO	13	$\psi(4160)\to\ \gamma\gamma J/\psi$

[1] Obtained by analyzing CLEO data but not authored by the CLEO Collaboration.

NODE=M025R40;LINKAGE=A

$\Gamma(\gamma X(3940)\to\gamma\gamma J/\psi)/\Gamma_{total}$ Γ_{41}/Γ

NODE=M025R41
NODE=M025R41

VALUE	CL%	DOCUMENT ID		COMMENT
$<1.79\times10^{-4}$	90	[1] XIAO	13	$\psi(4160)\to\ \gamma\gamma J/\psi$

[1] Obtained by analyzing CLEO data but not authored by the CLEO Collaboration.

NODE=M025R41;LINKAGE=A

$\Gamma(\omega\pi^0)/\Gamma_{total}$ Γ_{42}/Γ

NODE=M025R46
NODE=M025R46

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

$\Gamma(\omega\eta)/\Gamma_{total}$ Γ_{43}/Γ

NODE=M025R47
NODE=M025R47

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

$\Gamma(K^+K^-)/\Gamma_{total}$ Γ_{44}/Γ

NODE=M025R33
NODE=M025R33

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<2\times10^{-5}$	90	[1] DRUZHININ	15	RVUE	$e^+e^-\to\ \psi(3770)$

[1] DRUZHININ 15 uses BABAR and CLEO data taking into account interference of the processes $e^+e^-\to\ K^+K^-$ and $e^+e^-\to\ K^0_SK^0_L$.

NODE=M025R33;LINKAGE=A

$\Gamma(p\bar{p}p\bar{p})/\Gamma_{total}$ Γ_{46}/Γ

NODE=M025R44
NODE=M025R44

VALUE	DOCUMENT ID		TECN	COMMENT
not seen	ABLIKIM	21D	BES3	4.0–4.6 $e^+e^-\to\ p\bar{p}p\bar{p}$

$\psi(4160)$ REFERENCES

NODE=M025

ABLIKIM	24AH	JHEP 2405 022	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	24AL	JHEP 2407 258	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	24BH	PRL 133 081901	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	24CD	JHEP 2411 062	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	23AQ	JHEP 2308 159	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	23BH	PRL 131 151903	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	22K	JHEP 2207 064	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	21AS	PR D104 L091104	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	21D	PR D103 052003	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	20A	PR D101 012008	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	20AG	PR D102 112009	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	19AE	PR D99 072005	M. Ablikim *et al.*	(BESIII Collab.)
ZHUKOVA	18	PR D97 012002	V. Zhukova *et al.*	(BELLE Collab.)
ABLIKIM	17R	PR D96 012001	M. Ablikim *et al.*	(BESIII Collab.)
GAO	17	PR D95 092007	X.Y. Gao, C.P. Shen, C.Z. Yuan	
PDG	16	CP C40 100001	C. Patrignani *et al.*	(PDG Collab.)
ABLIKIM	15L	PR D91 112005	M. Ablikim *et al.*	(BESIII Collab.)
DRUZHININ	15	PR D92 054024	V.P. Druzhinin	(NOVO)

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NODE=M025R35;REFID=57991
NODE=M025R35;REFID=57140
NODE=M025R35;REFID=56777
NODE=M025R35;REFID=56962

HAN	15	PR D92 012011	Y.L. Han *et al.*	(BELLE Collab.)	REFID=56816
AAIJ	13BC	PRL 111 112003	R. Aaij *et al.*	(LHCb Collab.)	REFID=55229
WANG	13B	PR D87 051101	X.L. Wang *et al.*	(BELLE Collab.)	REFID=55377
XIAO	13	PR D87 057501	T. Xiao *et al.*	(NWES, WAYN)	REFID=55381
PAKHLOVA	11	PR D83 011101	G. Pakhlova *et al.*	(BELLE Collab.)	REFID=53638
PEDLAR	11	PRL 107 041803	T. Pedlar *et al.*	(CLEO Collab.)	REFID=16787
DEL-AMO-SA...	10N	PR D82 052004	P. del Amo Sanchez *et al.*	(BABAR Collab.)	REFID=53532
MO	10	PR D82 077501	X.H. Mo, C.Z. Yuan, P. Wang	(BHEP)	REFID=53540
AUBERT	09M	PR D79 092001	B. Aubert *et al.*	(BABAR Collab.)	REFID=52724
CRONIN-HEN...	09	PR D80 072001	D. Cronin-Hennessy *et al.*	(CLEO Collab.)	REFID=53114
PAKHLOVA	09	PR D80 091101	G. Pakhlova *et al.*	(BELLE Collab.)	REFID=53143
ABLIKIM	08D	PL B660 315	M. Ablikim *et al.*	(BES Collab.)	REFID=52142
PAKHLOVA	08	PR D77 011103	G. Pakhlova *et al.*	(BELLE Collab.)	REFID=52132
PAKHLOVA	08A	PRL 100 062001	G. Pakhlova *et al.*	(BELLE Collab.)	REFID=52134
PAKHLOVA	07	PRL 98 092001	G. Pakhlova *et al.*	(BELLE Collab.)	REFID=51628
COAN	06	PRL 96 162003	T.E. Coan *et al.*	(CLEO Collab.)	REFID=51075
SETH	05A	PR D72 017501	K.K. Seth		REFID=50813
BAI	02C	PRL 88 101802	J.Z. Bai *et al.*	(BES Collab.)	REFID=50506
BAI	00	PRL 84 594	J.Z. Bai *et al.*	(BES Collab.)	REFID=50503
OSTERHELD	86	SLAC-PUB-4160	A. Osterheld *et al.*	(SLAC Crystal Ball Collab.)	REFID=51064
BRANDELIK	78C	PL 76B 361	R. Brandelik *et al.*	(DASP Collab.)	REFID=22232