$\psi(4040)$

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

$\psi(4040)$ MASS

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
4039 ± 1 OUR ESTIMATE				
4039.6± 4.3	[1] ABLIKIM	08D	BES2	$e^+e^- \to$ hadrons
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4034 ± 6	[2] MO	10	RVUE	$e^+e^- \to$ hadrons
4037 ± 2	[3] SETH	05A	RVUE	$e^+e^- \to$ hadrons
4040 ± 1	[4] SETH	05A	RVUE	$e^+e^- \to$ hadrons
4040 ±10	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 $\delta = (130 \pm 46)^\circ$.

[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.

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

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

$\psi(4040)$ WIDTH

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
80 ±10 OUR ESTIMATE				
84.5±12.3	[5] ABLIKIM	08D	BES2	$e^+e^- \to$ hadrons
• • • We do not use the following data for averages, fits, limits, etc. • • •				
87 ±11	[6] MO	10	RVUE	$e^+e^- \to$ hadrons
85 ±10	[7] SETH	05A	RVUE	$e^+e^- \to$ hadrons
89 ± 6	[8] SETH	05A	RVUE	$e^+e^- \to$ hadrons
52 ±10	BRANDELIK	78C	DASP	e^+e^-

[5] 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 $\delta = (130 \pm 46)^\circ$.

[6] 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.

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

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

$\psi(4040)$ DECAY MODES

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 (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^-	$(1.07\pm0.16)\times10^{-5}$	
Γ_2	$D\overline{D}$	seen	
Γ_3	$D^0\overline{D}^0$	seen	
Γ_4	D^+D^-	seen	
Γ_5	$D^*\overline{D}+$ c.c.	seen	
Γ_6	$D^*(2007)^0\overline{D}^0+$ c.c.	seen	
Γ_7	$D^*(2010)^+D^-+$ c.c.	seen	
Γ_8	$D^*\overline{D}^*$	seen	
Γ_9	$D^*(2007)^0\overline{D}^*(2007)^0$	seen	
Γ_{10}	$D^*(2010)^+D^*(2010)^-$	seen	
Γ_{11}	$D\overline{D}\pi$ (excl. $D^*\overline{D}$)		
Γ_{12}	$D^0D^-\pi^+$+c.c. (excl. $D^*(2007)^0\overline{D}^0$ +c.c., $D^*(2010)^+D^-$ +c.c.)	not seen	
Γ_{13}	$D\overline{D}^*\pi$ (excl. $D^*\overline{D}^*$)	not seen	
Γ_{14}	$D^0\overline{D}^{*-}\pi^+$+c.c. (excl. $D^*(2010)^+D^*(2010)^-$)	seen	
Γ_{15}	$D_s^+D_s^-$	seen	
Γ_{16}	$\pi^+\pi^+\pi^-\pi^-\pi^0$		
Γ_{17}	$J/\psi(1S)$ hadrons		
Γ_{18}	$J/\psi\pi^+\pi^-$	$<4\times10^{-3}$	90%
Γ_{19}	$J/\psi\pi^0\pi^0$	$<2\times10^{-3}$	90%
Γ_{20}	$J/\psi\eta$	$(5.2\ \pm0.7\ )\times10^{-3}$	
Γ_{21}	$J/\psi\pi^0$	$<2.8\times10^{-4}$	90%
Γ_{22}	$J/\psi\pi^+\pi^-\pi^0$	$<2\times10^{-3}$	90%
Γ_{23}	$\chi_{c1}\gamma$	$<3.4\times10^{-3}$	90%
Γ_{24}	$\chi_{c2}\gamma$	$<5\times10^{-3}$	90%
Γ_{25}	$\chi_{c1}\pi^+\pi^-\pi^0$	<1.1 %	90%
Γ_{26}	$\chi_{c2}\pi^+\pi^-\pi^0$	<3.2 %	90%
Γ_{27}	$h_c(1P)\pi^+\pi^-$	$<3\times10^{-3}$	90%
Γ_{28}	$\phi\pi^+\pi^-$	$<3\times10^{-3}$	90%
Γ_{29}	$\Lambda\overline{\Lambda}\pi^+\pi^-$	$<2.9\times10^{-4}$	90%
Γ_{30}	$\Lambda\overline{\Lambda}\pi^0$	$<9\times10^{-5}$	90%
Γ_{31}	$\Lambda\overline{\Lambda}\eta$	$<3.0\times10^{-4}$	90%
Γ_{32}	$\Lambda\overline{\Lambda}$	$<6\times10^{-6}$	90%
Γ_{33}	$\Sigma^+\overline{\Sigma}^-$	$<1.3\times10^{-4}$	90%

Γ_{34}	$\Sigma^0\overline{\Sigma}^0$	< 7	$\times 10^{-5}$	90%
Γ_{35}	$\Xi^+\overline{\Xi}^-$	< 1.6	$\times 10^{-4}$	90%
Γ_{36}	$\Xi^0\overline{\Xi}^0$	< 1.8	$\times 10^{-4}$	90%
Γ_{37}	$\mu^+\mu^-$	(9 ± 6)	$\times 10^{-6}$	

$\psi(4040)$ PARTIAL WIDTHS

$\Gamma(e^+e^-)$ Γ_1

VALUE (keV)	*DOCUMENT ID*		*TECN*	*COMMENT*
0.86±0.07 OUR ESTIMATE				
0.83±0.20	[9] ABLIKIM	08D	BES2	$e^+e^- \to$ hadrons
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.6 to 1.4	[10] MO	10	RVUE	$e^+e^- \to$ hadrons
0.88±0.11	[11] SETH	05A	RVUE	$e^+e^- \to$ hadrons
0.91±0.13	[12] SETH	05A	RVUE	$e^+e^- \to$ hadrons
0.75±0.15	BRANDELIK	78C	DASP	e^+e^-

[9] 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 $\delta = (130 \pm 46)^\circ$.

[10] 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.

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

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

$\Gamma(\mu^+\mu^-)$ Γ_{37}

VALUE (keV)	*DOCUMENT ID*		*TECN*	*COMMENT*
0.73±0.48±0.12	[13,14] ABLIKIM	20AG	BES3	$e^+e^- \to \mu^+\mu^-$

[13] 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 $\Gamma(\mu^+\mu^-) = \Gamma(e^+e^-)$.

[14] From solution 1 of 8 with equal fit quality. Other solutions range from $0.58 \pm 0.52 \pm 0.10$ to $0.80 \pm 0.48 \pm 0.13$ keV.

$\psi(4040)$ $\Gamma(i) \times \Gamma(e^+e^-)/\Gamma(total)$

$\Gamma(\chi_{c1}\gamma) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{23}\Gamma_1/\Gamma$

VALUE (eV)	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<2.9	90	[15] HAN	15	BELL	10.58 $e^+e^- \to \chi_{c1}\gamma$

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

$\Gamma(\chi_{c2}\gamma) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{24}\Gamma_1/\Gamma$

VALUE (eV)	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<4.6	90	[16] HAN	15	BELL	10.58 $e^+e^- \to \chi_{c2}\gamma$

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

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

VALUE (eV)	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.5±0.3	[17] ABLIKIM	20O	BES3	$e^+e^- \to \eta J/\psi$
1.4±0.3	[18] ABLIKIM	20O	BES3	$e^+e^- \to \eta J/\psi$
7.0±0.6	[19] ABLIKIM	20O	BES3	$e^+e^- \to \eta J/\psi$

[17] Solution 1 of three equivalent fit solutions using three resonant structures.
[18] Solution 2 of three equivalent fit solutions using three resonant structures.
[19] Solution 3 of three equivalent fit solutions using three resonant structures.

$\psi(4040)$ Γ(i) × $\Gamma(e^+e^-)/\Gamma^2$(total)

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

VALUE (units 10^{-8})	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5.1±1.4±1.5	[20] WANG	13B	BELL	$e^+e^- \to J/\psi\eta\gamma$
12.8±2.1±1.9	[21] WANG	13B	BELL	$e^+e^- \to J/\psi\eta\gamma$

[20] Solution I of two equivalent solutions in a fit using two interfering resonances. Mass and width fixed at 4039 MeV and 80 MeV, respectively.
[21] Solution II of two equivalent solutions in a fit using two interfering resonances. Mass and width fixed at 4039 MeV and 80 MeV, respectively.

$\Gamma(\Lambda\overline{\Lambda}) \times \Gamma(e^+e^-)/\Gamma_{total}$ $\Gamma_{32}\Gamma_1/\Gamma$

VALUE (eV)	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<5.5 × 10^{-3}	90	[22] ABLIKIM	21AS	BES3	$e^+e^- \to \psi(4040)$

[22] From a measurement of the $e^+e^- \to \Lambda\overline{\Lambda}$ cross section between 3.5 and 4.6 GeV.

$\psi(4040)$ BRANCHING RATIOS

$\Gamma(e^+e^-)/\Gamma_{total}$ Γ_1/Γ

VALUE (units 10^{-5})	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
∼ 1.0	FELDMAN	77	MRK1	e^+e^-

$\Gamma(D^0\overline{D}^0)/\Gamma_{total}$ Γ_3/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
seen	AUBERT	09M	BABR	$e^+e^- \to D^0\overline{D}^0\gamma$
seen	CRONIN-HEN..09		CLEO	$e^+e^- \to D^0\overline{D}^0$
seen	PAKHLOVA	08	BELL	$e^+e^- \to D^0\overline{D}^0\gamma$

$\Gamma(D^+D^-)/\Gamma_{total}$ Γ_4/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
seen	AUBERT	09M	BABR	$e^+e^- \to D^+D^-\gamma$
seen	CRONIN-HEN..09		CLEO	$e^+e^- \to D^+D^-$
seen	PAKHLOVA	08	BELL	$e^+e^- \to D^+D^-\gamma$

$\Gamma(D\overline{D})/\Gamma(D^*\overline{D}+\text{c.c.})$ Γ_2/Γ_5

VALUE	DOCUMENT ID		TECN	COMMENT
0.24±0.05±0.12	AUBERT	09M	BABR	$e^+e^- \to \gamma D^{(*)}\overline{D}$

$\Gamma(D^0\overline{D}^0)/\Gamma(D^*(2007)^0\overline{D}^0+\text{c.c.})$ Γ_3/Γ_6

VALUE	DOCUMENT ID		TECN	COMMENT
0.05±0.03	[23] GOLDHABER	77	MRK1	e^+e^-

[23] Phase-space factor (p^3) explicitly removed.

$\Gamma(D^*(2007)^0\overline{D}^0+\text{c.c.})/\Gamma_{\text{total}}$ Γ_6/Γ

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_7/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[24] 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	$e^+e^- \to D^{*+}D^-\gamma$

[24] Supersedes PAKHLOVA 07.

$\Gamma(D^*(2010)^+D^-+\text{c.c.})/\Gamma(D^*(2007)^0\overline{D}^0+\text{c.c.})$ Γ_7/Γ_6

VALUE	DOCUMENT ID		TECN	COMMENT
0.95±0.09±0.10	AUBERT	09M	BABR	$e^+e^- \to \gamma D^*\overline{D}$

$\Gamma(D^*\overline{D}^*)/\Gamma(D^*\overline{D}+\text{c.c.})$ Γ_8/Γ_5

VALUE	DOCUMENT ID		TECN	COMMENT
0.18±0.14±0.03	AUBERT	09M	BABR	$e^+e^- \to \gamma D^{(*)}\overline{D}^{(*)}$

$\Gamma(D^*(2007)^0\overline{D}^*(2007)^0)/\Gamma_{\text{total}}$ Γ_9/Γ

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

$\Gamma(D^*(2007)^0\overline{D}^*(2007)^0)/\Gamma(D^*(2007)^0\overline{D}^0+\text{c.c.})$ Γ_9/Γ_6

VALUE	DOCUMENT ID		TECN	COMMENT
32.0±12.0	[25] GOLDHABER	77	MRK1	e^+e^-

[25] Phase-space factor (p^3) explicitly removed.

$\Gamma(D^*(2010)^+D^*(2010)^-)/\Gamma_{\text{total}}$ Γ_{10}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
seen	[26] 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	$e^+e^- \to D^{*+}D^{*-}\gamma$

[26] Supersedes PAKHLOVA 07.

$\Gamma(D^0 D^- \pi^+ + \text{c.c. (excl. } D^*(2007)^0 \overline{D}{}^0 + \text{c.c., } D^*(2010)^+ D^- + \text{c.c.}))/\Gamma_{\text{total}}$ Γ_{12}/Γ

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

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

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

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

VALUE	DOCUMENT ID		TECN	COMMENT
seen	PAKHLOVA	09	BELL	$e^+ e^- \to D^0 D^{*-} \pi^+ \gamma$

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

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	$e^+ e^- \to D_s^+ D_s^-$

$\Gamma(\pi^+ \pi^+ \pi^- \pi^- \pi^0)/\Gamma_{\text{total}}$ Γ_{16}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT

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

$(3.51 \pm 1.89 \pm 1.24) \times 10^{-5}$	[27] ABLIKIM	21AW	BES3	$e^+ e^- \to 2\pi^+ 2\pi^- \pi^0$
$(2.41 \pm 0.05 \pm 0.79) \times 10^{-2}$	[28] ABLIKIM	21AW	BES3	$e^+ e^- \to 2\pi^+ 2\pi^- \pi^0$

[27] Solution 1 of two solutions with equal fit quality. The significance of the $\psi(4040)$ signal is 3.6 σ.

[28] Solution 2 of two solutions with equal fit quality. The significance of the $\psi(4040)$ signal is 3.6 σ.

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

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<4	90	COAN	06	CLEO	3.97–4.06 $e^+ e^- \to$ hadrons

$\Gamma(J/\psi \pi^0 \pi^0)/\Gamma_{\text{total}}$ Γ_{19}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<2	90	COAN	06	CLEO	3.97–4.06 $e^+ e^- \to$ hadrons

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

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
5.2±0.5±0.5		[29] ABLIKIM	12K	BES3	$e^+ e^- \to \ell^+ \ell^- 2\gamma$

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

<7	90	COAN	06	CLEO	3.97–4.06 $e^+ e^- \to$ hadrons

[29] ABLIKIM 12K measure $\sigma(e^+ e^- \to J/\psi\eta) = 32.1 \pm 2.8 \pm 1.3$ pb. They assume the $\eta J/\psi$ fully originates from $\psi(4040)$ decays.

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

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<0.28	90	[30] ABLIKIM	12K	BES3	$e^+e^- \to \ell^+\ell^- 2\gamma$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<2	90	COAN	06	CLEO	3.97–4.06 $e^+e^- \to$ hadrons

[30] ABLIKIM 12K measure $\sigma(e^+e^- \to J/\psi\pi^0) < 1.6$ pb. They assume the $\eta J/\psi$ fully originates from $\psi(4040)$ decays.

$\Gamma(J/\psi\pi^+\pi^-\pi^0)/\Gamma_{\text{total}}$ Γ_{22}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID	TECN	COMMENT
<2	90	COAN	06	CLEO	3.97–4.06 $e^+e^- \to$ hadrons

$\Gamma(\chi_{c1}\gamma)/\Gamma_{\text{total}}$ Γ_{23}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<11	90	COAN	06	CLEO	3.97–4.06 $e^+e^- \to$ hadrons

$\Gamma(\chi_{c2}\gamma)/\Gamma_{\text{total}}$ Γ_{24}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<17	90	COAN	06	CLEO	3.97–4.06 $e^+e^- \to$ hadrons

$\Gamma(\chi_{c1}\pi^+\pi^-\pi^0)/\Gamma_{\text{total}}$ Γ_{25}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID	TECN	COMMENT
<11	90	COAN	06	CLEO	3.97–4.06 $e^+e^- \to$ hadrons

$\Gamma(\chi_{c2}\pi^+\pi^-\pi^0)/\Gamma_{\text{total}}$ Γ_{26}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID	TECN	COMMENT
<32	90	COAN	06	CLEO	3.97–4.06 $e^+e^- \to$ hadrons

$\Gamma(h_c(1P)\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{27}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID		TECN	COMMENT
<3	90	[31] PEDLAR	11	CLEO	$e^+e^- \to h_c(1P)\pi^+\pi^-$

[31] From several values of $\sqrt{s}$ near the peak of the $\psi(4040)$, PEDLAR 11 measures $\sigma(e^+e^- \to h_c(1P)\pi^+\pi^-) = 1.0 \pm 8.0 \pm 5.4 \pm 0.2$ pb, where the errors are statistical, systematic, and due to uncertainty in $B(\psi(2S) \to \pi^0 h_c(1P))$, respectively.

$\Gamma(\phi\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{28}/Γ

VALUE (units 10^{-3})	CL%	DOCUMENT ID	TECN	COMMENT
<3	90	COAN	06	CLEO	3.97–4.06 $e^+e^- \to$ hadrons

$\Gamma(\Lambda\overline{\Lambda}\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{29}/Γ

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	COMMENT
<2.9	90	[32] ABLIKIM	13Q	BES3	$e^+e^- \to \psi(4040)$

[32] Assuming that interference effects between resonance and continuum can be neglected.

$\Gamma(\Lambda\overline{\Lambda}\pi^0)/\Gamma_{\text{total}}$ Γ_{30}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.9	90	[33] ABLIKIM	13Q	BES3	$e^+e^- \to \psi(4040)$

[33] Assuming that interference effects between resonance and continuum can be neglected.

$\Gamma(\Lambda\overline{\Lambda}\eta)/\Gamma_{\text{total}}$ Γ_{31}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<3.0	90	[34] ABLIKIM	13Q	BES3	$e^+e^- \to \psi(4040)$

[34] Assuming that interference effects between resonance and continuum can be neglected.

$\Gamma(\Sigma^+\overline{\Sigma}^-)/\Gamma_{\text{total}}$ Γ_{33}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.3	90	[35] ABLIKIM	13Q	BES3	$e^+e^- \to \psi(4040)$

[35] Assuming that interference effects between resonance and continuum can be neglected.

$\Gamma(\Sigma^0\overline{\Sigma}^0)/\Gamma_{\text{total}}$ Γ_{34}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<0.7	90	[36] ABLIKIM	13Q	BES3	$e^+e^- \to \psi(4040)$

[36] Assuming that interference effects between resonance and continuum can be neglected.

$\Gamma(\Xi^+\overline{\Xi}^-)/\Gamma_{\text{total}}$ Γ_{35}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.6	90	[37] ABLIKIM	13Q	BES3	$e^+e^- \to \psi(4040)$

[37] Assuming that interference effects between resonance and continuum can be neglected.

$\Gamma(\Xi^0\overline{\Xi}^0)/\Gamma_{\text{total}}$ Γ_{36}/Γ

VALUE (units 10^{-4})	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<1.8	90	[38] ABLIKIM	13Q	BES3	$e^+e^- \to \psi(4040)$

[38] Assuming that interference effects between resonance and continuum can be neglected.

$\psi(4040)$ REFERENCES

ABLIKIM	21AS	PR D104 L091104	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	21AW	PR D104 112009	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	20AG	PR D102 112009	M. Ablikim *et al.*	(BESIII Collab.)
ABLIKIM	20O	PR D102 031101	M. Ablikim *et al.*	(BESIII Collab.)
ZHUKOVA	18	PR D97 012002	V. Zhukova *et al.*	(BELLE Collab.)
HAN	15	PR D92 012011	Y.L. Han *et al.*	(BELLE Collab.)
ABLIKIM	13Q	PR D87 112011	M. Ablikim *et al.*	(BESIII Collab.)
WANG	13B	PR D87 051101	X.L. Wang *et al.*	(BELLE Collab.)
ABLIKIM	12K	PR D86 071101	M. Ablikim *et al.*	(BESIII 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.)
MO	10	PR D82 077501	X.H. Mo, C.Z. Yuan, P. Wang	(BHEP)
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.)
ABLIKIM	08D	PL B660 315	M. Ablikim *et al.*	(BES Collab.)
PAKHLOVA	08	PR D77 011103	G. Pakhlova *et al.*	(BELLE Collab.)
PAKHLOVA	08A	PRL 100 062001	G. Pakhlova *et al.*	(BELLE Collab.)
PAKHLOVA	07	PRL 98 092001	G. Pakhlova *et al.*	(BELLE Collab.)

COAN	06	PRL 96 162003	T.E. Coan *et al.*	(CLEO Collab.)
SETH	05A	PR D72 017501	K.K. Seth	
BAI	02C	PRL 88 101802	J.Z. Bai *et al.*	(BES Collab.)
BAI	00	PRL 84 594	J.Z. Bai *et al.*	(BES Collab.)
OSTERHELD	86	SLAC-PUB-4160	A. Osterheld *et al.*	(SLAC Crystal Ball Collab.)
BRANDELIK	78C	PL 76B 361	R. Brandelik *et al.*	(DASP Collab.)
Also		ZPHY C1 233	R. Brandelik *et al.*	(DASP Collab.)
FELDMAN	77	PRPL 33C 285	G.J. Feldman, M.L. Perl	(LBL, SLAC)
GOLDHABER	77	PL 69B 503	G. Goldhaber *et al.*	(Mark I Collab.)