$f_0(1710)$

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

See our mini-review in the 2004 edition of this *Review*, Physics Letters **B592** 1 (2004). See also the mini-review on scalar mesons under $f_0(500)$ (see the index for the page number).

$f_0(1710)$ MASS

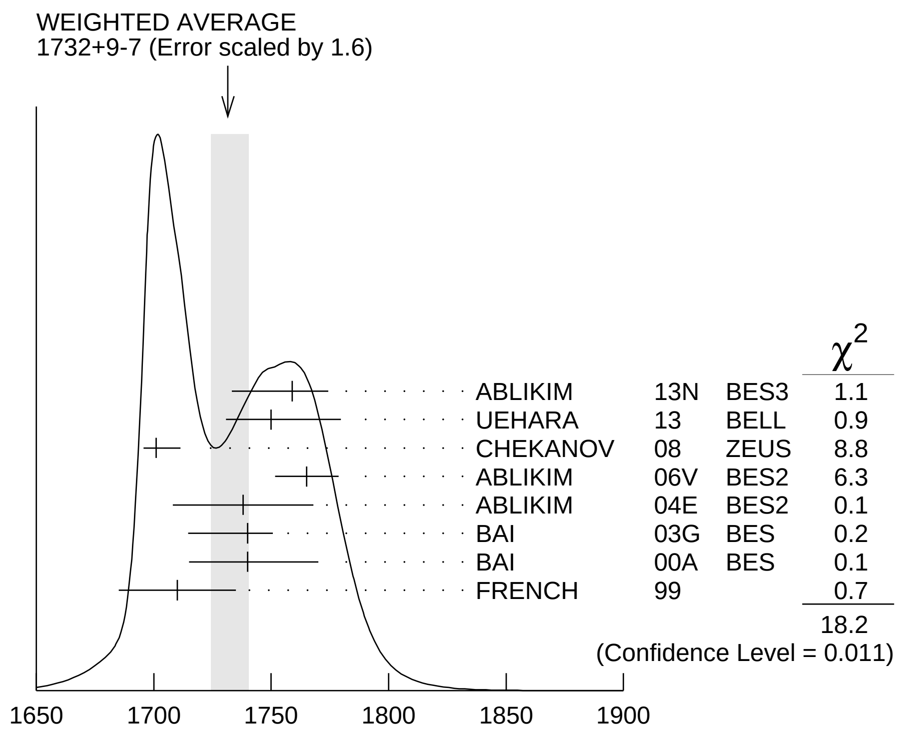
OUR EVALUATION below is based on T-matrix poles from BARBERIS 00E and BARBERIS 99D.

VALUE (MeV)		EVTS	DOCUMENT ID		TECN	COMMENT
1704±12	**OUR EVALUATION**					
1732^{+9}_{-7}	**OUR AVERAGE**	Error includes scale factor of 1.6. See the ideogram below.				
1759± 6	$^{+14}_{-25}$	5.5k	[1] ABLIKIM	13N	BES3	$e^+e^- \to J/\psi \to \gamma\eta\eta$
1750^{+6}_{-7}	$^{+29}_{-18}$		[2] UEHARA	13	BELL	$\gamma\gamma \to K^0_S K^0_S$
1701± 5	$^{+9}_{-2}$	4k	[3] CHEKANOV	08	ZEUS	$e p \to K^0_S K^0_S X$
1765^{+4}_{-3}	±13		[4] ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^+\pi^-$
1738±30			ABLIKIM	04E	BES2	$J/\psi \to \omega K^+K^-$
1740± 4	$^{+10}_{-25}$		BAI	03G	BES	$J/\psi \to \gamma K\overline{K}$
1740^{+30}_{-25}			BAI	00A	BES	$J/\psi \to \gamma(\pi^+\pi^-\pi^+\pi^-)$
1710±25			[5] FRENCH	99		300 $p p \to p_f(K^+K^-)p_s$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
1744± 7	± 5	381	[6,7] DOBBS	15		$J/\psi \to \gamma\pi^+\pi^-$
1705±11	± 5	237	[6,7] DOBBS	15		$\psi(2S) \to \gamma\pi^+\pi^-$
1706± 4	± 5	1.0k	[6,7] DOBBS	15		$J/\psi \to \gamma K^+K^-$
1690± 8	± 3	349	[6,7] DOBBS	15		$\psi(2S) \to \gamma K^+K^-$
1750±13			AMSLER	06	CBAR	1.64 $\overline{p}p \to K^+K^-\pi^0$
1747± 5		80k	[4,8] UMAN	06	E835	5.2 $\overline{p}p \to \eta\eta\pi^0$
1776±15			VLADIMIRSK...	06	SPEC	40 $\pi^- p \to K^0_S K^0_S n$
1790^{+40}_{-30}			[9] ABLIKIM	05	BES2	$J/\psi \to \phi\pi^+\pi^-$
1760±15	$^{+15}_{-10}$		[9] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^-K^+K^-$
1670±20			[4] BINON	05	GAMS	33 $\pi^- p \to \eta\eta n$
1732+15			[10] ANISOVICH	03	RVUE	
1682±16			TIKHOMIROV	03	SPEC	40.0 π^- C $\to K^0_S K^0_S K^0_L$ X
1670±26		3.6k	[11] NICHITIU	02	OBLX	0 $\overline{p}p \to K^+K^-\pi^+\pi^-\pi^0$
1698±18			[12] BARBERIS	00E		450 $p p \to p_f\eta\eta p_s$
1770±12			[13] ANISOVICH	99B	SPEC	0.6–1.2 $p\overline{p} \to \eta\eta\pi^0$
1730±15			BARBERIS	99	OMEG	450 $p p \to p_s p_f K^+K^-$
1750±20			BARBERIS	99B	OMEG	450 $p p \to p_s p_f \pi^+\pi^-$
1710±12	±11		[14] BARBERIS	99D	OMEG	450 $p p \to K^+K^-$, $\pi^+\pi^-$
1750±30			[15] ANISOVICH	98B	RVUE	Compilation

1720±39			BAI	98H	BES	$J/\psi \to \gamma\pi^0\pi^0$
1775± 1.5		57	[16] BARKOV	98		$\pi^- p \to K^0_S K^0_S n$
1690±11			[17] ABREU	96C	DLPH	$Z^0 \to K^+ K^- + X$
1696± 5	$^{+\ 9}_{-34}$		[18] BAI	96C	BES	$J/\psi \to \gamma K^+ K^-$
1781± 8	$^{+10}_{-31}$		BAI	96C	BES	$J/\psi \to \gamma K^+ K^-$
1768±14			BALOSHIN	95	SPEC	$40\ \pi^- C \to K^0_S K^0_S X$
1750±15			[19] BUGG	95	MRK3	$J/\psi \to \gamma\pi^+\pi^-\pi^+\pi^-$
1620±16			[18] BUGG	95	MRK3	$J/\psi \to \gamma\pi^+\pi^-\pi^+\pi^-$
1748±10			[20] ARMSTRONG	93C	E760	$\overline{p}p \to \pi^0\eta\eta \to 6\gamma$
∼ 1750			BREAKSTONE	93	SFM	$pp \to pp\pi^+\pi^-\pi^+\pi^-$
1744±15			[21] ALDE	92D	GAM2	$38\ \pi^- p \to \eta\eta n$
1713±10			[22] ARMSTRONG	89D	OMEG	$300\ pp \to ppK^+K^-$
1706±10			[22] ARMSTRONG	89D	OMEG	$300\ pp \to ppK^0_S K^0_S$
1707±10			[20] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^+ K^-, K^0_S K^0_S$
1700±15			[18] BOLONKIN	88	SPEC	$40\ \pi^- p \to K^0_S K^0_S n$
1720±60			BOLONKIN	88	SPEC	$40\ \pi^- p \to K^0_S K^0_S n$
1638±10			[23] FALVARD	88	DM2	$J/\psi \to \phi K^+ K^-, K^0_S K^0_S$
1690± 4			[24] FALVARD	88	DM2	$J/\psi \to \phi K^+ K^-, K^0_S K^0_S$
1698±15			[20] AUGUSTIN	87	DM2	$J/\psi \to \gamma\pi^+\pi^-$
1720±10	±10		[18] BALTRUSAIT...	87	MRK3	$J/\psi \to \gamma K^+ K^-$
1755± 8			[25] ALDE	86C	GAM2	$38\ \pi^- p \to n2\eta$
$1730^{+\ 2}_{-10}$			[26] LONGACRE	86	RVUE	$22\ \pi^- p \to n2K^0_S$
1742±15			[20] WILLIAMS	84	MPSF	$200\ \pi^- N \to 2K^0_S X$
1670±50			BLOOM	83	CBAL	$J/\psi \to \gamma 2\eta$
1650±50			BURKE	82	MRK2	$J/\psi \to \gamma 2\rho$
1640±50			[27,28] EDWARDS	82D	CBAL	$J/\psi \to \gamma 2\eta$
1730±10	±20		[29] ETKIN	82C	MPS	$23\ \pi^- p \to n2K^0_S$

[1] From partial wave analysis including all possible combinations of 0^{++}, 2^{++}, and 4^{++} resonances.
[2] Spin 0 favored over spin 2.
[3] In the SU(3) based model with a specific interference pattern of the $f_2(1270)$, $a^0_2(1320)$, and $f'_2(1525)$ mesons incoherently added to the $f_0(1710)$ and non-resonant background.
[4] Breit-Wigner mass.
[5] $J^P = 0^+$, supersedes by ARMSTRONG 89D.
[6] Using CLEO-c data but not authored by the CLEO Collaboration.
[7] From a fit to a Breit-Wigner line shape with fixed $\Gamma = 135$ MeV.
[8] Systematic errors not estimated.
[9] This state may be different from $f_0(1710)$, see CLOSE 05.
[10] K-matrix pole, assuming $J^P = 0^+$, from combined analysis of $\pi^- p \to \pi^0\pi^0 n$, $\pi^- p \to K\overline{K}n$, $\pi^+\pi^- \to \pi^+\pi^-$, $\overline{p}p \to \pi^0\pi^0\pi^0$, $\pi^0\eta\eta$, $\pi^0\pi^0\eta$, $\pi^+\pi^-\pi^0$, $K^+K^-\pi^0$, $K^0_S K^0_S \pi^0$, $K^+ K^0_S \pi^-$ at rest, $\overline{p}n \to \pi^-\pi^-\pi^+$, $K^0_S K^-\pi^0$, $K^0_S K^0_S \pi^-$ at rest.
[11] Decaying to $f_0(1370)\pi\pi$.
[12] T-matrix pole.
[13] Not seen by AMSLER 02.
[14] Supersedes BARBERIS 99 and BARBERIS 99B.
[15] T-matrix pole, assuming $J^P = 0^+$

[16] No J^{PC} determination.
[17] No J^{PC} determination, width not determined.
[18] $J^P = 2^+$.
[19] From a fit to the 0^+ partial wave.
[20] No J^{PC} determination.
[21] ALDE 92D combines all the GAMS-2000 data.
[22] $J^P = 2^+$, superseded by FRENCH 99.
[23] From an analysis ignoring interference with $f'_2(1525)$.
[24] From an analysis including interference with $f'_2(1525)$.
[25] Superseded by ALDE 92D.
[26] Uses MRK3 data. From a partial-wave analysis of data using a K-matrix formalism with 5 poles, but assuming spin 2. Fit with constrained inelasticity.
[27] $J^P = 2^+$ preferred.
[28] From fit neglecting nearby $f'_2(1525)$. Replaced by BLOOM 83.
[29] Superseded by LONGACRE 86.



$f_0(1710)$ mass (MeV)

f_0(1710) WIDTH

OUR EVALUATION below is based on T-matrix poles from BARBERIS 00E and BARBERIS 99D.

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
123 ± 18 OUR EVALUATION				
147 $^{+12}_{-10}$ OUR AVERAGE Error includes scale factor of 1.2.				
172 ± 10 $^{+32}_{-16}$	5.5k	[1] ABLIKIM 13N	BES3	$e^+e^- \to J/\psi \to \gamma\eta\eta$
139 $^{+11}_{-12}$ $^{+96}_{-50}$		[2] UEHARA 13	BELL	$\gamma\gamma \to K^0_S K^0_S$

$100 \pm 24 {}^{+7}_{-22}$	4k	[3]	CHEKANOV	08	ZEUS	$e p \rightarrow K^0_S K^0_S X$
$145 \pm 8 \pm 69$		[4]	ABLIKIM	06V	BES2	$e^+ e^- \rightarrow J/\psi \rightarrow \gamma \pi^+ \pi^-$
125 ± 20			ABLIKIM	04E	BES2	$J/\psi \rightarrow \omega K^+ K^-$
$166 {}^{+5}_{-8} {}^{+15}_{-10}$			BAI	03G	BES	$J/\psi \rightarrow \gamma K \overline{K}$
$120 {}^{+50}_{-40}$			BAI	00A	BES	$J/\psi \rightarrow \gamma (\pi^+ \pi^- \pi^+ \pi^-)$
105 ± 34		[5]	FRENCH	99		$300\ p p \rightarrow p_f (K^+ K^-) p_s$

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

$148 {}^{+40}_{-30}$			AMSLER	06	CBAR	$1.64\ \overline{p} p \rightarrow K^+ K^- \pi^0$
188 ± 13	80k	[4,6]	UMAN	06	E835	$5.2\ \overline{p} p \rightarrow \eta \eta \pi^0$
250 ± 30			VLADIMIRSK...	06	SPEC	$40\ \pi^- p \rightarrow K^0_S K^0_S n$
$270 {}^{+60}_{-30}$		[7]	ABLIKIM	05	BES2	$J/\psi \rightarrow \phi \pi^+ \pi^-$
$125 \pm 25 {}^{+10}_{-15}$		[4]	ABLIKIM	05Q	BES2	$\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$
260 ± 50		[4]	BINON	05	GAMS	$33\ \pi^- p \rightarrow \eta \eta n$
144 ± 30		[8,9]	ANISOVICH	03	RVUE	
$320 {}^{+50}_{-20}$		[9,10]	ANISOVICH	03	RVUE	
102 ± 26			TIKHOMIROV	03	SPEC	$40.0\ \pi^- C \rightarrow K^0_S K^0_S K^0_L X$
267 ± 44	3651	[11]	NICHITIU	02	OBLX	$0\ \bar{p}p \rightarrow K^+ K^- \pi^+ \pi^- \pi^0$
120 ± 26		[12]	BARBERIS	00E		$450\ p p \rightarrow p_f \eta \eta p_s$
220 ± 40		[13,14]	ANISOVICH	99B	SPEC	$0.6–1.2\ p \overline{p} \rightarrow \eta \eta \pi^0$
100 ± 25			BARBERIS	99	OMEG	$450\ p p \rightarrow p_s p_f K^+ K^-$
160 ± 30			BARBERIS	99B	OMEG	$450\ p p \rightarrow p_s p_f \pi^+ \pi^-$
$126 \pm 16 \pm 18$		[12,15]	BARBERIS	99D	OMEG	$450\ p p \rightarrow K^+ K^-, \pi^+ \pi^-$
250 ± 140		[16]	ANISOVICH	98B	RVUE	Compilation
30 ± 7	57	[17]	BARKOV	98		$\pi^- p \rightarrow K^0_S K^0_S n$
$103 \pm 18 {}^{+30}_{-11}$		[18]	BAI	96C	BES	$J/\psi \rightarrow \gamma K^+ K^-$
$85 \pm 24 {}^{+22}_{-19}$			BAI	96C	BES	$J/\psi \rightarrow \gamma K^+ K^-$
56 ± 19			BALOSHIN	95	SPEC	$40\ \pi^- C \rightarrow K^0_S K^0_S X$
160 ± 40		[19]	BUGG	95	MRK3	$J/\psi \rightarrow \gamma \pi^+ \pi^- \pi^+ \pi^-$
$160 {}^{+60}_{-20}$		[18]	BUGG	95	MRK3	$J/\psi \rightarrow \gamma \pi^+ \pi^- \pi^+ \pi^-$
264 ± 25		[20]	ARMSTRONG	93C	E760	$\overline{p} p \rightarrow \pi^0 \eta \eta \rightarrow 6\gamma$
200 to 300			BREAKSTONE	93	SFM	$p p \rightarrow p p \pi^+ \pi^- \pi^+ \pi^-$
< 80 90% CL		[21]	ALDE	92D	GAM2	$38\ \pi^- p \rightarrow \eta \eta N^*$
181 ± 30		[22]	ARMSTRONG	89D	OMEG	$300\ p p \rightarrow p p K^+ K^-$
104 ± 30		[22]	ARMSTRONG	89D	OMEG	$300\ p p \rightarrow p p K^0_S K^0_S$
166.4 ± 33.2		[20]	AUGUSTIN	88	DM2	$J/\psi \rightarrow \gamma K^+ K^-, K^0_S K^0_S$
30 ± 20		[18]	BOLONKIN	88	SPEC	$40\ \pi^- p \rightarrow K^0_S K^0_S n$
350 ± 150			BOLONKIN	88	SPEC	$40\ \pi^- p \rightarrow K^0_S K^0_S n$
148 ± 17		[23]	FALVARD	88	DM2	$J/\psi \rightarrow \phi K^+ K^-, K^0_S K^0_S$
184 ± 6		[24]	FALVARD	88	DM2	$J/\psi \rightarrow \phi K^+ K^-, K^0_S K^0_S$
136 ± 28		[20]	AUGUSTIN	87	DM2	$J/\psi \rightarrow \gamma \pi^+ \pi^-$

130 ± 20	[18] BALTRUSAIT...87		MRK3	$J/\psi \rightarrow \gamma K^+ K^-$
$122\ ^{+74}_{-15}$	[25] LONGACRE	86	RVUE	$22\ \pi^- p \rightarrow n 2K^0_S$
57 ± 38	[26] WILLIAMS	84	MPSF	$200\ \pi^- N \rightarrow 2K^0_S X$
160 ± 80	BLOOM	83	CBAL	$J/\psi \rightarrow \gamma 2\eta$
200 ± 100	BURKE	82	MRK2	$J/\psi \rightarrow \gamma 2\rho$
$220\ ^{+100}_{-70}$	[27,28] EDWARDS	82D	CBAL	$J/\psi \rightarrow \gamma 2\eta$
$200\ ^{+156}_{-9}$	[29] ETKIN	82B	MPS	$23\ \pi^- p \rightarrow n 2K^0_S$

[1] From partial wave analysis including all possible combinations of 0^{++}, 2^{++}, and 4^{++} resonances.
[2] Spin 0 favored over spin 2.
[3] In the SU(3) based model with a specific interference pattern of the $f_2(1270)$, $a_2^0(1320)$, and $f_2'(1525)$ mesons incoherently added to the $f_0(1710)$ and non-resonant background.
[4] Breit-Wigner width.
[5] $J^P = 0^+$, supersedes by ARMSTRONG 89D.
[6] Systematic errors not estimated.
[7] This state may be different from $f_0(1710)$, see CLOSE 05.
[8] (Solution I)
[9] K-matrix pole, assuming $J^P = 0^+$, from combined analysis of $\pi^- p \rightarrow \pi^0 \pi^0 n$, $\pi^- p \rightarrow K \overline{K} n$, $\pi^+ \pi^- \rightarrow \pi^+ \pi^-$, $\overline{p} p \rightarrow \pi^0 \pi^0 \pi^0$, $\pi^0 \eta \eta$, $\pi^0 \pi^0 \eta$, $\pi^+ \pi^- \pi^0$, $K^+ K^- \pi^0$, $K^0_S K^0_S \pi^0$, $K^+ K^0_S \pi^-$ at rest, $\overline{p} n \rightarrow \pi^- \pi^- \pi^+$, $K^0_S K^- \pi^0$, $K^0_S K^0_S \pi^-$ at rest.
[10] (Solution I)
[11] Decaying to $f_0(1370)\pi\pi$.
[12] T-matrix pole.
[13] $J^P = 0^+$.
[14] Not seen by AMSLER 02.
[15] Supersedes BARBERIS 99 and BARBERIS 99B.
[16] T-matrix pole, assuming $J^P = 0^+$
[17] No J^{PC} determination.
[18] $J^P = 2^+$.
[19] From a fit to the 0^+ partial wave.
[20] No J^{PC} determination.
[21] ALDE 92D combines all the GAMS-2000 data.
[22] $J^P = 2^+$, (0^+ excluded).
[23] From an analysis ignoring interference with $f_2'(1525)$.
[24] From an analysis including interference with $f_2'(1525)$.
[25] Uses MRK3 data. From a partial-wave analysis of data using a K-matrix formalism with 5 poles, but assuming spin 2. Fit with constrained inelasticity.
[26] No J^{PC} determination.
[27] $J^P = 2^+$ preferred.
[28] From fit neglecting nearby $f_2'(1525)$. Replaced by BLOOM 83.
[29] From an amplitude analysis of the $K^0_S K^0_S$ system, superseded by LONGACRE 86.

$f_0(1710)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$K\overline{K}$	seen
Γ_2	$\eta\eta$	seen
Γ_3	$\pi\pi$	seen
Γ_4	$\gamma\gamma$	seen
Γ_5	$\omega\omega$	seen

$f_0(1710)$ $\Gamma(i)\Gamma(\gamma\gamma)/\Gamma(\text{total})$

$\Gamma(K\overline{K}) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ $\qquad$ $\Gamma_1\Gamma_4/\Gamma$

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{12^{+3}_{-2}{}^{+227}_{-8}}$		UEHARA	13	BELL	$\gamma\gamma \to K^0_S K^0_S$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<480	95	ALBRECHT	90G	ARG	$\gamma\gamma \to K^+ K^-$
<110	95	[1] BEHREND	89C	CELL	$\gamma\gamma \to K^0_S K^0_S$
<280	95	[1] ALTHOFF	85B	TASS	$\gamma\gamma \to K\overline{K}\pi$

[1] Assuming helicity 2.

$\Gamma(\pi\pi) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ $\qquad$ $\Gamma_3\Gamma_4/\Gamma$

VALUE (keV)	CL%	DOCUMENT ID		TECN	COMMENT
<0.82	95	[1] BARATE	00E	ALEP	$\gamma\gamma \to \pi^+\pi^-$

[1] Assuming spin 0.

$f_0(1710)$ BRANCHING RATIOS

$\Gamma(K\overline{K})/\Gamma_{\text{total}}$ $\qquad$ Γ_1/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
seen	1004	[1] DOBBS	15		$J/\psi \to \gamma K^+ K^-$
seen	349	[1] DOBBS	15		$\psi(2S) \to \gamma K^+ K^-$
0.36 ± 0.12		ALBALADEJO	08	RVUE	
$0.38^{+0.09}_{-0.19}$		[2] LONGACRE	86	MPS	$22\ \pi^- p \to n 2K^0_S$

[1] Using CLEO-c data but not authored by the CLEO Collaboration.
[2] From a partial-wave analysis of data using a K-matrix formalism with 5 poles, but assuming spin 2. Fit with constrained inelasticity.

$\Gamma(\eta\eta)/\Gamma_{\text{total}}$ $\qquad$ Γ_2/Γ

VALUE	DOCUMENT ID		TECN
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.22 ± 0.12	ALBALADEJO	08	RVUE
$0.18^{+0.03}_{-0.13}$	[1] LONGACRE	86	RVUE

[1] From a partial-wave analysis of data using a K-matrix formalism with 5 poles, but assuming spin 2. Fit with constrained inelasticity.

$\Gamma(\pi\pi)/\Gamma_{total}$ $\qquad$ Γ_3/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
seen	381	[1] DOBBS	15		$J/\psi \to \gamma\pi^+\pi^-$
seen	237	[1] DOBBS	15		$\psi(2S) \to \gamma\pi^+\pi^-$
not seen		AMSLER	02	CBAR	0.9 $\overline{p}p \to \pi^0\eta\eta$, $\pi^0\pi^0\pi^0$
$0.039^{+0.002}_{-0.024}$		[2] LONGACRE	86	RVUE	

[1] Using CLEO-c data but not authored by the CLEO Collaboration.
[2] From a partial-wave analysis of data using a K-matrix formalism with 5 poles, but assuming spin 2. Fit with constrained inelasticity.

$\Gamma(\pi\pi)/\Gamma(K\overline{K})$ $\qquad$ Γ_3/Γ_1

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
0.23±0.05 OUR AVERAGE		Error includes scale factor of 1.2.			
0.64±0.27 ±0.18		LEES	18A	BABR	$\Upsilon(1S) \to \gamma\pi^+\pi^-$, γK^+K^-
$0.41^{+0.11}_{-0.17}$		ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^+\pi^-$
0.2 ±0.024±0.036		BARBERIS	99D	OMEG	450 $pp \to K^+K^-$, $\pi^+\pi^-$
0.39±0.14		ARMSTRONG	91	OMEG	300 $pp \to pp\pi\pi$, $ppK\overline{K}$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.32±0.14		ALBALADEJO	08	RVUE	
< 0.11	95	[1] ABLIKIM	04E	BES2	$J/\psi \to \omega K^+K^-$
$5.8^{+9.1}_{-5.5}$		[2] ANISOVICH	02D	SPEC	Combined fit

[1] Using data from ABLIKIM 04A.
[2] From a combined K-matrix analysis of Crystal Barrel (0. $p\overline{p} \to \pi^0\pi^0\pi^0$, $\pi^0\eta\eta$, $\pi^0\pi^0\eta$), GAMS ($\pi p \to \pi^0\pi^0 n$, $\eta\eta n$, $\eta\eta' n$), and BNL ($\pi p \to K\overline{K}n$) data.

$\Gamma(\eta\eta)/\Gamma(K\overline{K})$ $\qquad$ Γ_2/Γ_1

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
0.48±0.15		BARBERIS	00E		450 $pp \to p_f\eta\eta p_s$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.46^{+0.70}_{-0.38}$		[1] ANISOVICH	02D	SPEC	Combined fit
<0.02	90	[2] PROKOSHKIN	91	GA24	300 $\pi^-p \to \pi^-p\eta\eta$

[1] From a combined K-matrix analysis of Crystal Barrel (0. $p\overline{p} \to \pi^0\pi^0\pi^0$, $\pi^0\eta\eta$, $\pi^0\pi^0\eta$), GAMS ($\pi p \to \pi^0\pi^0 n$, $\eta\eta n$, $\eta\eta' n$), and BNL ($\pi p \to K\overline{K}n$) data.
[2] Combining results of GAM4 with those of ARMSTRONG 89D.

$\Gamma(\omega\omega)/\Gamma_{total}$ $\qquad$ Γ_5/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
seen	180	ABLIKIM	06H	BES	$J/\psi \to \gamma\omega\omega$

$f_0(1710)$ REFERENCES

LEES	18A	PR D97 112006	J.P. Lees *et al.*	(BABAR Collab.)
DOBBS	15	PR D91 052006	S. Dobbs *et al.*	(NWES)
ABLIKIM	13N	PR D87 092009	Ablikim M. *et al.*	(BES III Collab.)
UEHARA	13	PTEP 2013 123C01	S. Uehara *et al.*	(BELLE Collab.)
ALBALADEJO	08	PRL 101 252002	M. Albaladejo, J.A. Oller	
CHEKANOV	08	PRL 101 112003	S. Chekanov *et al.*	(ZEUS Collab.)
ABLIKIM	06H	PR D73 112007	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06V	PL B642 441	M. Ablikim *et al.*	(BES Collab.)
AMSLER	06	PL B639 165	C. Amsler *et al.*	(CBAR Collab.)
UMAN	06	PR D73 052009	I. Uman *et al.*	(FNAL E835)
VLADIMIRSK...	06	PAN 69 493 Translated from YAF 69 515.	V.V. Vladimirsky *et al.*	(ITEP, Moscow)
ABLIKIM	05	PL B607 243	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05Q	PR D72 092002	M. Ablikim *et al.*	(BES Collab.)
BINON	05	PAN 68 960 Translated from YAF 68 998.	F. Binon *et al.*	
CLOSE	05	PR D71 094022	F.E. Close, Q. Zhao	
ABLIKIM	04A	PL B598 149	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	04E	PL B603 138	M. Ablikim *et al.*	(BES Collab.)
PDG	04	PL B592 1	S. Eidelman *et al.*	(PDG Collab.)
ANISOVICH	03	EPJ A16 229	V.V. Anisovich *et al.*	
BAI	03G	PR D68 052003	J.Z. Bai *et al.*	(BES Collab.)
TIKHOMIROV	03	PAN 66 828 Translated from YAF 66 860.	G.D. Tikhomirov *et al.*	
AMSLER	02	EPJ C23 29	C. Amsler *et al.*	
ANISOVICH	02D	PAN 65 1545 Translated from YAF 65 1583.	V.V. Anisovich *et al.*	
NICHITIU	02	PL B545 261	F. Nichitiu *et al.*	(OBELIX Collab.)
BAI	00A	PL B472 207	J.Z. Bai *et al.*	(BES Collab.)
BARATE	00E	PL B472 189	R. Barate *et al.*	(ALEPH Collab.)
BARBERIS	00E	PL B479 59	D. Barberis *et al.*	(WA 102 Collab.)
ANISOVICH	99B	PL B449 154	A.V. Anisovich *et al.*	
BARBERIS	99	PL B453 305	D. Barberis *et al.*	(Omega Expt.)
BARBERIS	99B	PL B453 316	D. Barberis *et al.*	(Omega Expt.)
BARBERIS	99D	PL B462 462	D. Barberis *et al.*	(Omega Expt.)
FRENCH	99	PL B460 213	B. French *et al.*	(WA76 Collab.)
ANISOVICH	98B	SPU 41 419 Translated from UFN 168 481.	V.V. Anisovich *et al.*	
BAI	98H	PRL 81 1179	J.Z. Bai *et al.*	(BES Collab.)
BARKOV	98	JETPL 68 764	B.P. Barkov *et al.*	
ABREU	96C	PL B379 309	P. Abreu *et al.*	(DELPHI Collab.)
BAI	96C	PRL 77 3959	J.Z. Bai *et al.*	(BES Collab.)
BALOSHIN	95	PAN 58 46 Translated from YAF 58 50.	O.N. Baloshin *et al.*	(ITEP)
BUGG	95	PL B353 378	D.V. Bugg *et al.*	(LOQM, PNPI, WASH)
ARMSTRONG	93C	PL B307 394	T.A. Armstrong *et al.*	(FNAL, FERR, GENO+)
BREAKSTONE	93	ZPHY C58 251	A.M. Breakstone *et al.*	(IOWA, CERN, DORT+)
ALDE	92D	PL B284 457	D.M. Alde *et al.*	(GAM2 Collab.)
Also		SJNP 54 451 Translated from YAF 54 745.	D.M. Alde *et al.*	(GAM2 Collab.)
ARMSTRONG	91	ZPHY C51 351	T.A. Armstrong *et al.*	(ATHU, BARI, BIRM+)
PROKOSHKIN	91	SPD 36 155 Translated from DANS 316 900.	Y.D. Prokoshkin	(GAM2, GAM4 Collab.)
ALBRECHT	90G	ZPHY C48 183	H. Albrecht *et al.*	(ARGUS Collab.)
ARMSTRONG	89D	PL B227 186	T.A. Armstrong, M. Benayoun	(ATHU, BARI, BIRM+)
BEHREND	89C	ZPHY C43 91	H.J. Behrend *et al.*	(CELLO Collab.)
AUGUSTIN	88	PRL 60 2238	J.E. Augustin *et al.*	(DM2 Collab.)
BOLONKIN	88	NP B309 426	B.V. Bolonkin *et al.*	(ITEP, SERP)
FALVARD	88	PR D38 2706	A. Falvard *et al.*	(CLER, FRAS, LALO+)
AUGUSTIN	87	ZPHY C36 369	J.E. Augustin *et al.*	(LALO, CLER, FRAS+)
BALTRUSAIT...	87	PR D35 2077	R.M. Baltrusaitis *et al.*	(Mark III Collab.)
ALDE	86C	PL B182 105	D.M. Alde *et al.*	(SERP, BELG, LANL, LAPP)
LONGACRE	86	PL B177 223	R.S. Longacre *et al.*	(BNL, BRAN, CUNY+)
ALTHOFF	85B	ZPHY C29 189	M. Althoff *et al.*	(TASSO Collab.)
WILLIAMS	84	PR D30 877	E.G.H. Williams *et al.*	(VAND, NDAM, TUFTS+)
BLOOM	83	ARNS 33 143	E.D. Bloom, C. Peck	(SLAC, CIT)
BURKE	82	PRL 49 632	D.L. Burke *et al.*	(LBL, SLAC)
EDWARDS	82D	PRL 48 458	C. Edwards *et al.*	(CIT, HARV, PRIN+)
ETKIN	82B	PR D25 1786	A. Etkin *et al.*	(BNL, CUNY, TUFTS, VAND)
ETKIN	82C	PR D25 2446	A. Etkin *et al.*	(BNL, CUNY, TUFTS, VAND)