$f_0(1710)$

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

See the review on "Spectroscopy of Light Meson Resonances."

$f_0(1710)$ T-MATRIX POLE $\sqrt{s}$

Note that $\Gamma \approx 2\ \mathrm{Im}(\sqrt{s})$.

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
(1680–1820) − i (50–180) OUR ESTIMATE				
$(1769 \pm 8) - i\,(78 \pm 6)$	[1] RODAS	22	RVUE	$J/\psi(1S) \to \gamma\,(\pi\pi, K\overline{K})$
$(1700 \pm 18) - i\,(127 \pm 12)$	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma\,(\pi\pi, K\overline{K}, \eta\eta, \omega\phi)$
$(1803 \pm 3.5^{+45.5}_{-10.4}) - i\,(145 \pm 2.5^{+16.3}_{-9.6})$	[2] ALBRECHT	20	RVUE	$0.9\ \overline{p}p \to \pi^0\pi^0\eta, \pi^0\eta\eta, \pi^0 K^+K^-$
$(1732 \pm 15) - i\,(160^{+25}_{-10})$	[3] ANISOVICH	03	RVUE	$\pi\pi, K\overline{K}, \eta\eta, \eta\eta', \pi\pi\pi\pi$
$(1698 \pm 18) - i\,(60 \pm 13)$	BARBERIS	00E	OMEG	$450\ pp \to p_f\,\eta\eta\,p_s$
$(1770 \pm 12) - i\,(110 \pm 20)$	[4] ANISOVICH	99B	SPEC	$0.6–1.2\ p\overline{p} \to \eta\eta\pi^0$
$(1727 \pm 12 \pm 11) - i\,(63 \pm 8 \pm 9)$	BARBERIS	99D	OMEG	$450\ pp \to K^+K^-, \pi^+\pi^-$
$(1750 \pm 30) - i\,(125 \pm 70)$	ANISOVICH	98B	RVUE	Compilation

[1] T-matrix pole from coupled channel K-matrix fit to data on $J/\psi \to \gamma\pi^0\pi^0$ (ABLIKIM 15AE) and $J/\psi \to \gamma K^0_S K^0_S$ (ABLIKIM 18AA).

[2] T-matrix pole, 5 poles, 5 channels, including scattering data from HYAMS 75 ($\pi\pi$), LONGACRE 86 ($K\overline{K}$), BINON 83 ($\eta\eta$), and BINON 84C ($\eta\eta'$).

[3] Solution I.

[4] Not seen by AMSLER 02.

$f_0(1710)$ Breit-Wigner MASS

VALUE (MeV)		EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{1733^{+8}_{-7}}$	**OUR AVERAGE**		Error includes scale factor of 1.5. See the ideogram below.			
1757 ± 24	± 9		LEES	21A	BABR	$\eta_c(1S) \to \eta' K^+K^-$
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	$ep \to K^0_S K^0_S X$
1765^{+4}_{-3}	± 13		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			[4] FRENCH	99		$300\ pp \to p_f(K^+K^-)p_s$

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

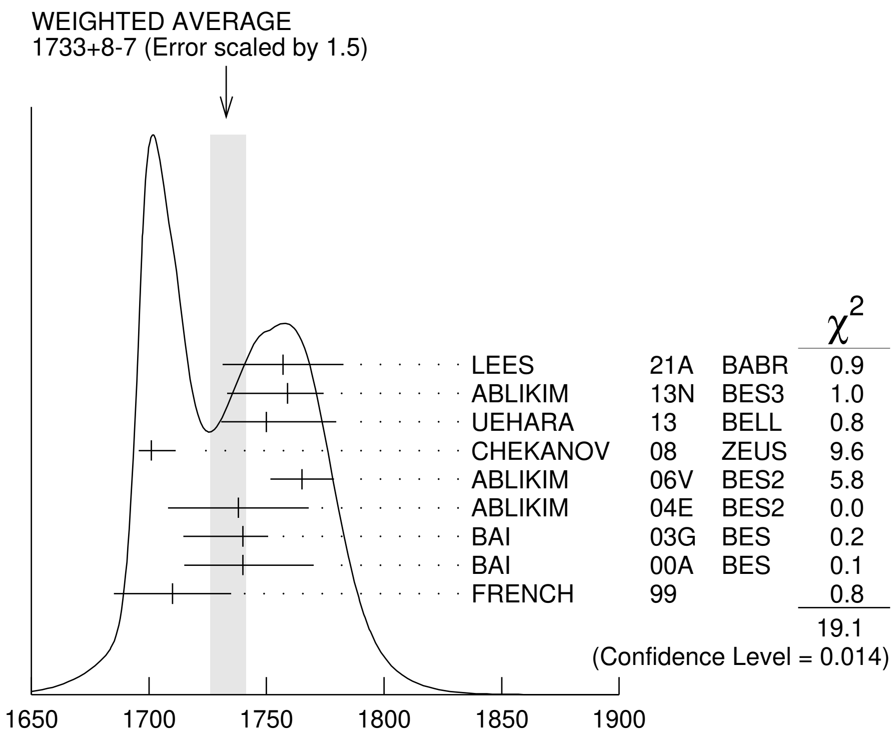
$1744 \pm 7 \pm 5$	381	[5,6]	DOBBS	15		$J/\psi \to \gamma \pi^+ \pi^-$
$1705 \pm 11 \pm 5$	237	[5,6]	DOBBS	15		$\psi(2S) \to \gamma \pi^+ \pi^-$
$1706 \pm 4 \pm 5$	1.0k	[5,6]	DOBBS	15		$J/\psi \to \gamma K^+ K^-$
$1690 \pm 8 \pm 3$	349	[5,6]	DOBBS	15		$\psi(2S) \to \gamma K^+ K^-$
1750 ± 13			AMSLER	06	CBAR	$1.64\ \overline{p}p \to K^+ K^- \pi^0$
1747 ± 5	80k	[7]	UMAN	06	E835	$5.2\ \overline{p}p \to \eta\eta\pi^0$
1776 ± 15			VLADIMIRSK...	06	SPEC	$40\ \pi^- p \to K^0_S K^0_S n$
1670 ± 20			BINON	05	GAMS	$33\ \pi^- p \to \eta\eta n$
1682 ± 16			TIKHOMIROV	03	SPEC	$40.0\ \pi^- \text{C} \to K^0_S K^0_S K^0_L X$
1670 ± 26	3.6k	[8]	NICHITIU	02	OBLX	$0\ \overline{p}p \to K^+ K^- \pi^+ \pi^- \pi^0$
1730 ± 15			BARBERIS	99	OMEG	$450\ pp \to p_s p_f K^+ K^-$
1750 ± 20			BARBERIS	99B	OMEG	$450\ pp \to p_s p_f \pi^+ \pi^-$
1720 ± 39			BAI	98H	BES	$J/\psi \to \gamma \pi^0 \pi^0$
1775 ± 1.5	57	[9]	BARKOV	98		$\pi^- p \to K^0_S K^0_S n$
1690 ± 11		[10]	ABREU	96C	DLPH	$Z^0 \to K^+ K^- + X$
$1696 \pm 5 {}^{+9}_{-34}$		[11]	BAI	96C	BES	$J/\psi \to \gamma K^+ K^-$
$1781 \pm 8 {}^{+10}_{-31}$			BAI	96C	BES	$J/\psi \to \gamma K^+ K^-$
1768 ± 14			BALOSHIN	95	SPEC	$40\ \pi^- \text{C} \to K^0_S K^0_S X$
1750 ± 15		[12]	BUGG	95	MRK3	$J/\psi \to \gamma \pi^+ \pi^- \pi^+ \pi^-$
1620 ± 16		[11]	BUGG	95	MRK3	$J/\psi \to \gamma \pi^+ \pi^- \pi^+ \pi^-$
1748 ± 10		[13]	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		[14]	ALDE	92D	GAM2	$38\ \pi^- p \to \eta\eta n$
1713 ± 10		[15]	ARMSTRONG	89D	OMEG	$300\ pp \to pp K^+ K^-$
1706 ± 10		[15]	ARMSTRONG	89D	OMEG	$300\ pp \to pp K^0_S K^0_S$
1707 ± 10		[13]	AUGUSTIN	88	DM2	$J/\psi \to \gamma K^+ K^-, K^0_S K^0_S$
1700 ± 15		[11]	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		[16]	FALVARD	88	DM2	$J/\psi \to \phi K^+ K^-, K^0_S K^0_S$
1690 ± 4		[17]	FALVARD	88	DM2	$J/\psi \to \phi K^+ K^-, K^0_S K^0_S$
1698 ± 15		[13]	AUGUSTIN	87	DM2	$J/\psi \to \gamma \pi^+ \pi^-$
$1720 \pm 10 \pm 10$		[11]	BALTRUSAIT...	87	MRK3	$J/\psi \to \gamma K^+ K^-$
1755 ± 8		[18]	ALDE	86C	GAM2	$38\ \pi^- p \to n 2\eta$
$1730 {}^{+2}_{-10}$		[19]	LONGACRE	86	RVUE	$22\ \pi^- p \to n 2K^0_S$
1742 ± 15		[13]	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		[20,21]	EDWARDS	82D	CBAL	$J/\psi \to \gamma 2\eta$
$1730 \pm 10 \pm 20$		[22]	ETKIN	82C	MPS	$23\ \pi^- p \to n 2K^0_S$

[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 $f_2(1270)$, $a^0_2(1320)$, and $f'_2(1525)$ mesons incoherently added to the $f_0(1710)$ and non-resonant background.

[4] $J^P = 0^+$, supersedes ARMSTRONG 89D.
[5] Using CLEO-c data but not authored by the CLEO Collaboration.
[6] From a fit to a Breit-Wigner line shape with fixed $\Gamma = 135$ MeV.
[7] Systematic errors not estimated.
[8] Decaying to $f_0(1370)\pi\pi$.
[9] No J^{PC} determination.
[10] No J^{PC} determination, width not determined.
[11] $J^P = 2^+$.
[12] From a fit to the 0^+ partial wave.
[13] No J^{PC} determination.
[14] ALDE 92D combines all the GAMS-2000 data.
[15] $J^P = 2^+$, superseded by FRENCH 99.
[16] From an analysis ignoring interference with $f'_2(1525)$.
[17] From an analysis including interference with $f'_2(1525)$.
[18] Superseded by ALDE 92D.
[19] 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.
[20] $J^P = 2^+$ preferred.
[21] From fit neglecting nearby $f'_2(1525)$. Replaced by BLOOM 83.
[22] Superseded by LONGACRE 86.



$f_0(1710)$ mass (MeV)

$f_0(1710)$ Breit-Wigner WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
150 $^{+12}_{-10}$ OUR AVERAGE Error includes scale factor of 1.3. See the ideogram below.					
175 ± 23 ± 4		LEES	21A	BABR	$\eta_c(1S) \to \eta' K^+ K^-$

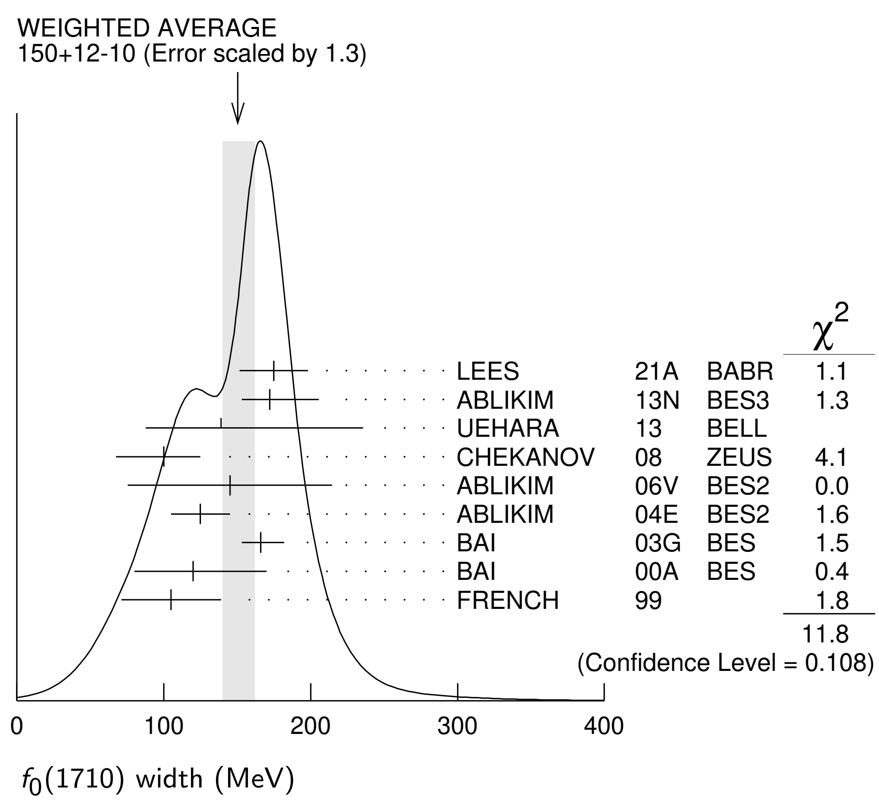
$172 \pm 10\ ^{+32}_{-16}$	5.5k	[1] ABLIKIM	13N	BES3	$e^+e^- \rightarrow J/\psi \rightarrow \gamma\eta\eta$
$139\ ^{+11}_{-12}\ ^{+96}_{-50}$		[2] UEHARA	13	BELL	$\gamma\gamma \rightarrow K^0_S K^0_S$
$100 \pm 24\ ^{+7}_{-22}$	4k	[3] CHEKANOV	08	ZEUS	$e p \rightarrow K^0_S K^0_S X$
$145 \pm 8 \pm 69$		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		[4] 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	[5] UMAN	06	E835	$5.2\ \overline{p}p \rightarrow \eta\eta\pi^0$
250 ± 30		VLADIMIRSK...	06	SPEC	$40\ \pi^- p \rightarrow K^0_S K^0_S n$
260 ± 50		BINON	05	GAMS	$33\ \pi^- p \rightarrow \eta\eta n$
102 ± 26		TIKHOMIROV	03	SPEC	$40.0\ \pi^- C \rightarrow K^0_S K^0_S K^0_L X$
267 ± 44	3651	[6] NICHITIU	02	OBLX	$0\ \overline{p}p \rightarrow K^+K^-\pi^+\pi^-\pi^0$
100 ± 25		BARBERIS	99	OMEG	$450\ p p \rightarrow p_s p_f K^+K^-$
160 ± 30		BARBERIS	99B	OMEG	$450\ p p \rightarrow p_s p_f \pi^+\pi^-$
30 ± 7	57	[7] BARKOV	98		$\pi^- p \rightarrow K^0_S K^0_S n$
$103 \pm 18\ ^{+30}_{-11}$		[8] 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		[9] BUGG	95	MRK3	$J/\psi \rightarrow \gamma\pi^+\pi^-\pi^+\pi^-$
$160\ ^{+60}_{-20}$		[8] BUGG	95	MRK3	$J/\psi \rightarrow \gamma\pi^+\pi^-\pi^+\pi^-$
264 ± 25		[10] 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		[11] ALDE	92D	GAM2	$38\ \pi^- p \rightarrow \eta\eta N^*$
181 ± 30		[12] ARMSTRONG	89D	OMEG	$300\ p p \rightarrow p p K^+K^-$
104 ± 30		[12] ARMSTRONG	89D	OMEG	$300\ p p \rightarrow p p K^0_S K^0_S$
166.4 ± 33.2		[10] AUGUSTIN	88	DM2	$J/\psi \rightarrow \gamma K^+K^-,\ K^0_S K^0_S$
30 ± 20		[8] 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		[13] FALVARD	88	DM2	$J/\psi \rightarrow \phi K^+K^-,\ K^0_S K^0_S$
184 ± 6		[14] FALVARD	88	DM2	$J/\psi \rightarrow \phi K^+K^-,\ K^0_S K^0_S$
136 ± 28		[10] AUGUSTIN	87	DM2	$J/\psi \rightarrow \gamma\pi^+\pi^-$
130 ± 20		[8] BALTRUSAIT...	87	MRK3	$J/\psi \rightarrow \gamma K^+K^-$
$122\ ^{+74}_{-15}$		[15] LONGACRE	86	RVUE	$22\ \pi^- p \rightarrow n 2K^0_S$
57 ± 38		[16] 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	$J/\psi \to \gamma 2\rho$
220 $^{+100}_{-\ 70}$	17,18	EDWARDS	82D	CBAL	$J/\psi \to \gamma 2\eta$
200 $^{+156}_{-\ \ 9}$	19	ETKIN	82B	MPS	$23\ \pi^- p \to n 2K^0_S$

[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 $f_2(1270)$, $a^0_2(1320)$, and $f'_2(1525)$ mesons incoherently added to the $f_0(1710)$ and non-resonant background.
[4] $J^P = 0^+$, supersedes ARMSTRONG 89D.
[5] Systematic errors not estimated.
[6] Decaying to $f_0(1370)\pi\pi$.
[7] No J^{PC} determination.
[8] $J^P = 2^+$.
[9] From a fit to the 0^+ partial wave.
[10] No J^{PC} determination.
[11] ALDE 92D combines all the GAMS-2000 data.
[12] $J^P = 2^+$, (0^+ excluded).
[13] From an analysis ignoring interference with $f'_2(1525)$.
[14] From an analysis including interference with $f'_2(1525)$.
[15] 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.
[16] No J^{PC} determination.
[17] $J^P = 2^+$ preferred.
[18] From fit neglecting nearby $f'_2(1525)$. Replaced by BLOOM 83.
[19] 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	$\eta\eta'$	
Γ_4	$\pi\pi$	seen
Γ_5	$\gamma\gamma$	seen
Γ_6	$\omega\omega$	seen

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

$\Gamma(K\overline{K}) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_1\Gamma_5/\Gamma$

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.

$\Gamma(\pi\pi) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_4\Gamma_5/\Gamma$

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

$\Gamma(K\overline{K})/\Gamma_{total}$ — 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.

$\Gamma(\eta\eta)/\Gamma_{total}$ — 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.

$\Gamma(\pi\pi)/\Gamma_{total}$ Γ_4/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.

$\Gamma(\pi\pi)/\Gamma(K\overline{K})$ Γ_4/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.

$\Gamma(\eta\eta)/\Gamma(K\overline{K})$ 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.

$\Gamma(\eta\eta')/\Gamma(\pi\pi)$ Γ_3/Γ_4

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.87 \times 10^{-3}$	90	[1] ABLIKIM	22AS	BES3	$J/\psi(1S) \to \gamma\eta\eta'$

[1] From a Breit-Wigner fit involving 9 resonances and a resonating exotic $\eta_1(1855) \to \eta\eta'$ P-wave.

$\Gamma(\omega\omega)/\Gamma_{total}$ Γ_6/Γ

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

$f_0(1710)$ REFERENCES

ABLIKIM	22AS	PR D106 072012	M. Ablikim *et al.*	(BESIII Collab.)
Also		PR D107 079901 (errat.)	M. Ablikim *et al.*	(BESIII Collab.)
RODAS	22	EPJ C82 80	A. Rodas *et al.*	(JPAC Collab.)
LEES	21A	PR D104 072002	J.P. Lees *et al.*	(BABAR Collab.)
SARANTSEV	21	PL B816 136227	A.V. Sarantsev *et al.*	(BONN, PNPI)
ALBRECHT	20	EPJ C80 453	M. Albrecht *et al.*	(Crystal Barrel Collab.)
ABLIKIM	18AA	PR D98 072003	M. Ablikim *et al.*	(BESIII Collab.)
LEES	18A	PR D97 112006	J.P. Lees *et al.*	(BABAR Collab.)
ABLIKIM	15AE	PR D92 052003	M. Ablikim *et al.*	(BESIII Collab.)
DOBBS	15	PR D91 052006	S. Dobbs *et al.*	(NWES)
ABLIKIM	13N	PR D87 092009	M. Ablikim *et al.*	(BESIII 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.*	(Crystal Barrel Collab.)
UMAN	06	PR D73 052009	I. Uman *et al.*	(FNAL E835)
VLADIMIRSK...	06	PAN 69 493	V.V. Vladimirsky *et al.*	(ITEP, Moscow)
		Translated from YAF 69 515.		
BINON	05	PAN 68 960	F. Binon *et al.*	
		Translated from YAF 68 998.		
ABLIKIM	04A	PL B598 149	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	04E	PL B603 138	M. Ablikim *et al.*	(BES 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	G.D. Tikhomirov *et al.*	
		Translated from YAF 66 860.		
AMSLER	02	EPJ C23 29	C. Amsler *et al.*	(Crystal Barrel Collab.)
ANISOVICH	02D	PAN 65 1545	V.V. Anisovich *et al.*	
		Translated from YAF 65 1583.		
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	V.V. Anisovich *et al.*	
		Translated from UFN 168 481.		
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	O.N. Baloshin *et al.*	(ITEP)
		Translated from YAF 58 50.		
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	D.M. Alde *et al.*	(GAM2 Collab.)
		Translated from YAF 54 745.		
ARMSTRONG	91	ZPHY C51 351	T.A. Armstrong *et al.*	(ATHU, BARI, BIRM+)
PROKOSHKIN	91	SPD 36 155	Y.D. Prokoshkin	(GAM2 and GAM4 Collab.)
		Translated from DANS 316 900.		
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.)
BINON	84C	NC 80A 363	F.G. Binon *et al.*	(BELG, LAPP, SERP+)

WILLIAMS	84	PR D30 877	E.G.H. Williams *et al.*	(VAND, NDAM, TUFTS+)
BINON	83	NC 78A 313	F.G. Binon *et al.*	(BELG, LAPP, SERP+)
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)
HYAMS	75	NP B100 205	B.D. Hyams *et al.*	(CERN, MPIM)