$f_0(1710)$

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

See our mini-review in the 2004 edition of this *Review*, PDG 04.

$f_0(1710)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
1720± 6 OUR AVERAGE		Error includes scale factor of 1.6. See the ideogram below.			
$1701 \pm 5 {}^{+9}_{-2}$	4k	[1] CHEKANOV	08	ZEUS	$e p \to K^0_S K^0_S X$
$1765^{+4}_{-3} \pm 13$		ABLIKIM	06V	BES2	$e^+ e^- \to J/\psi \to \gamma \pi^+ \pi^-$
$1760 \pm 15 {}^{+15}_{-10}$		[2] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma \pi^+ \pi^- K^+ K^-$
1738 ± 30		ABLIKIM	04E	BES2	$J/\psi \to \omega K^+ K^-$
$1740 \pm 4 {}^{+10}_{-25}$		[3] BAI	03G	BES	$J/\psi \to \gamma K \overline{K}$
1740^{+30}_{-25}		[3] BAI	00A	BES	$J/\psi \to \gamma(\pi^+ \pi^- \pi^+ \pi^-)$
1698 ± 18		[4] BARBERIS	00E		450 $p p \to p_f \eta \eta p_s$
$1710 \pm 12 \pm 11$		[5] BARBERIS	99D	OMEG	450 $p p \to K^+ K^-, \pi^+ \pi^-$
1710 ± 25		[6] FRENCH	99		300 $p p \to p_f (K^+ K^-) p_s$
1707 ± 10		[7] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^+ K^-, K^0_S K^0_S$
1698 ± 15		[7] AUGUSTIN	87	DM2	$J/\psi \to \gamma \pi^+ \pi^-$
$1720 \pm 10 \pm 10$		[8] BALTRUSAIT...	87	MRK3	$J/\psi \to \gamma K^+ K^-$
1742 ± 15		[7] WILLIAMS	84	MPSF	200 $\pi^- N \to 2 K^0_S X$
1670 ± 50		BLOOM	83	CBAL	$J/\psi \to \gamma 2\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1750 ± 13		AMSLER	06	CBAR	1.64 $\overline{p} p \to K^+ K^- \pi^0$
1747 ± 5	80k	[9,10] 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}		[2] ABLIKIM	05	BES2	$J/\psi \to \phi \pi^+ \pi^-$
1670 ± 20		[9] BINON	05	GAMS	33 $\pi^- p \to \eta \eta n$
1726 ± 7	74	[10] CHEKANOV	04	ZEUS	$e p \to K^0_S K^0_S X$
$1732 + 15$		[11] ANISOVICH	03	RVUE	
1682 ± 16		TIKHOMIROV	03	SPEC	40.0 $\pi^- C \to K^0_S K^0_S K^0_L X$
1670 ± 26	3651	[3,12] NICHITIU	02	OBLX	
1770 ± 12		[13,14] ANISOVICH	99B	SPEC	0.6–1.2 $p \overline{p} \to \eta \eta \pi^0$
1730 ± 15		[3] BARBERIS	99	OMEG	450 $p p \to p_s p_f K^+ K^-$
1750 ± 20		[3] BARBERIS	99B	OMEG	450 $p p \to p_s p_f \pi^+ \pi^-$
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	$Z^0 \to K^+ K^- + X$
$1696 \pm 5 {}^{+9}_{-34}$		[8] BAI	96C	BES	$J/\psi \to \gamma K^+ K^-$
$1781 \pm 8 {}^{+10}_{-31}$		[3] BAI	96C	BES	$J/\psi \to \gamma K^+ K^-$

1768±14		BALOSHIN	95	SPEC	$40\ \pi^- \mathrm{C} \to K^0_S K^0_S X$
1750±15		[18] BUGG	95	MRK3	$J/\psi \to \gamma\pi^+\pi^-\pi^+\pi^-$
1620±16		[8] BUGG	95	MRK3	$J/\psi \to \gamma\pi^+\pi^-\pi^+\pi^-$
1748±10		[7] 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		[19] ALDE	92D	GAM2	$38\ \pi^- p \to \eta\eta n$
1713±10		[20] ARMSTRONG	89D	OMEG	$300\ pp \to ppK^+K^-$
1706±10		[20] ARMSTRONG	89D	OMEG	$300\ pp \to ppK^0_S K^0_S$
1700±15		[8] BOLONKIN	88	SPEC	$40\ \pi^- p \to K^0_S K^0_S n$
1720±60		[3] BOLONKIN	88	SPEC	$40\ \pi^- p \to K^0_S K^0_S n$
1638±10		[21] FALVARD	88	DM2	$J/\psi \to \phi K^+K^-, K^0_S K^0_S$
1690± 4		[22] FALVARD	88	DM2	$J/\psi \to \phi K^+K^-, K^0_S K^0_S$
1755± 8		[23] ALDE	86C	GAM2	$38\ \pi^- p \to n2\eta$
$1730^{+\ 2}_{-10}$		[24] LONGACRE	86	RVUE	$22\ \pi^- p \to n2K^0_S$
1650±50		BURKE	82	MRK2	$J/\psi \to \gamma 2\rho$
1640±50		[25,26] EDWARDS	82D	CBAL	$J/\psi \to \gamma 2\eta$
1730±10	±20	[27] ETKIN	82C	MPS	$23\ \pi^- p \to n2K^0_S$

[1] 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.

[2] This state may be different from $f_0(1710)$, see CLOSE 05.

[3] $J^P = 0^+$.

[4] T-matrix pole.

[5] Supersedes BARBERIS 99 and BARBERIS 99B.

[6] $J^P = 0^+$, supersedes by ARMSTRONG 89D.

[7] No J^{PC} determination.

[8] $J^P = 2^+$.

[9] Breit-Wigner mass.

[10] Systematic errors not estimated.

[11] 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.

[12] Decaying to $f_0(1370)\pi\pi$.

[13] $J^P = 0^+$.

[14] Not seen by AMSLER 02.

[15] T-matrix pole, assuming $J^P = 0^+$

[16] No J^{PC} determination.

[17] No J^{PC} determination, width not determined.

[18] From a fit to the 0^+ partial wave.

[19] ALDE 92D combines all the GAMS-2000 data.

[20] $J^P = 2^+$, superseded by FRENCH 99.

[21] From an analysis ignoring interference with $f'_2(1525)$.

[22] From an analysis including interference with $f'_2(1525)$.

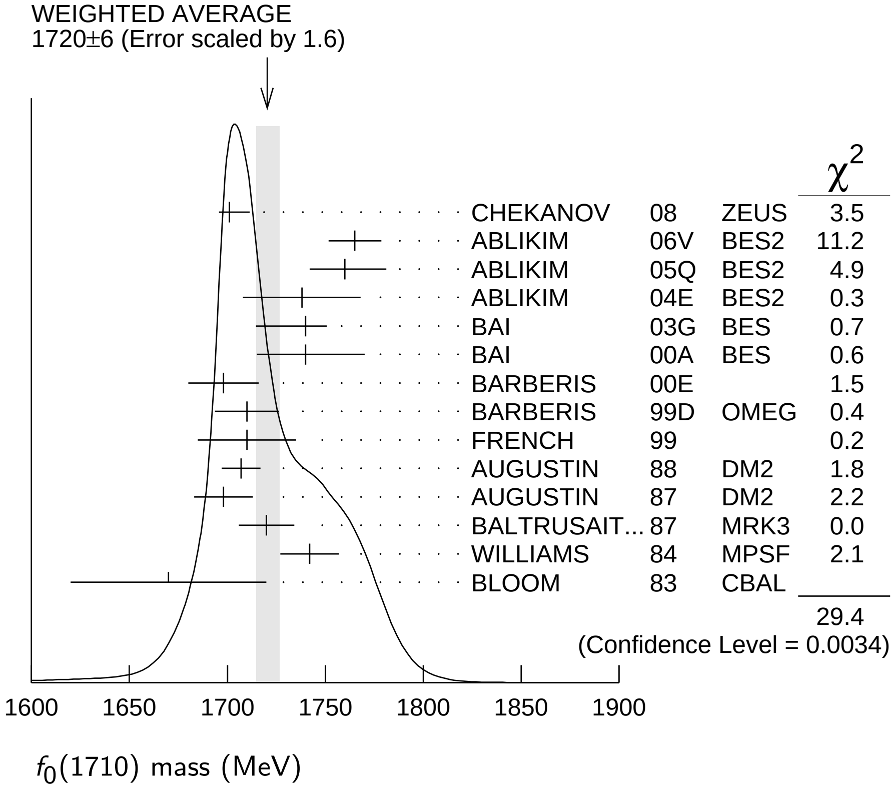
[23] Superseded by ALDE 92D.

[24] 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.

[25] $J^P = 2^+$ preferred.

[26] From fit neglecting nearby $f'_2(1525)$. Replaced by BLOOM 83.

[27] Superseded by LONGACRE 86.



$f_0(1710)$ WIDTH

VALUE (MeV)		EVTS	DOCUMENT ID		TECN	COMMENT
135 ± 8	**OUR AVERAGE**		Error includes scale factor of 1.1.			
100 ± 24	$^{+7}_{-22}$	4k	[28] CHEKANOV	08	ZEUS	$e p \to K^0_S K^0_S X$
145 ± 8	±69		ABLIKIM	06V	BES2	$e^+ e^- \to J/\psi \to \gamma \pi^+ \pi^-$
125 ± 25	$^{+10}_{-15}$		[29] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma \pi^+ \pi^- K^+ K^-$
125 ± 20			ABLIKIM	04E	BES2	$J/\psi \to \omega K^+ K^-$
166 $^{+5}_{-8}$	$^{+15}_{-10}$		[30] BAI	03G	BES	$J/\psi \to \gamma K \overline{K}$
120 $^{+50}_{-40}$			[30] BAI	00A	BES	$J/\psi \to \gamma(\pi^+ \pi^- \pi^+ \pi^-)$
120 ± 26			[31] BARBERIS	00E		450 $p p \to p_f \eta \eta p_s$
126 ± 16	±18		[32] BARBERIS	99D	OMEG	450 $p p \to K^+ K^-, \pi^+ \pi^-$
105 ± 34			[33] FRENCH	99		300 $p p \to p_f (K^+ K^-) p_s$
166.4 ± 33.2			[34] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^+ K^-, K^0_S K^0_S$
136 ± 28			[34] AUGUSTIN	87	DM2	$J/\psi \to \gamma \pi^+ \pi^-$
130 ± 20			[35] BALTRUSAIT...	87	MRK3	$J/\psi \to \gamma K^+ K^-$
57 ± 38			[36] WILLIAMS	84	MPSF	200 $\pi^- N \to 2K^0_S X$
160 ± 80			BLOOM	83	CBAL	$J/\psi \to \gamma 2\eta$

• • • 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	[29,37]	UMAN	06	E835	$5.2\ \overline{p}p \rightarrow \eta\eta\pi^0$
250 ± 30				VLADIMIRSK...	06	SPEC	$40\ \pi^- p \rightarrow K^0_S K^0_S n$
$270 {}^{+60}_{-30}$			[38]	ABLIKIM	05	BES2	$J/\psi \rightarrow \phi\pi^+\pi^-$
260 ± 50			[29]	BINON	05	GAMS	$33\ \pi^- p \rightarrow \eta\eta n$
$38 {}^{+20}_{-14}$		74	[37]	CHEKANOV	04	ZEUS	$ep \rightarrow K^0_S K^0_S X$
144 ± 30			[39,40]	ANISOVICH	03	RVUE	
$320 {}^{+50}_{-20}$			[40,41]	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	[30,42]	NICHITIU	02	OBLX	
220 ± 40			[43,44]	ANISOVICH	99B	SPEC	$0.6–1.2\ p\overline{p} \rightarrow \eta\eta\pi^0$
100 ± 25			[30]	BARBERIS	99	OMEG	$450\ pp \rightarrow p_s p_f K^+K^-$
160 ± 30			[30]	BARBERIS	99B	OMEG	$450\ pp \rightarrow p_s p_f \pi^+\pi^-$
250 ± 140			[45]	ANISOVICH	98B	RVUE	Compilation
30 ± 7		57	[46]	BARKOV	98		$\pi^- p \rightarrow K^0_S K^0_S n$
103 ± 18	${}^{+30}_{-11}$		[35]	BAI	96C	BES	$J/\psi \rightarrow \gamma K^+K^-$
85 ± 24	${}^{+22}_{-19}$		[30]	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			[47]	BUGG	95	MRK3	$J/\psi \rightarrow \gamma\pi^+\pi^-\pi^+\pi^-$
$160 {}^{+60}_{-20}$			[35]	BUGG	95	MRK3	$J/\psi \rightarrow \gamma\pi^+\pi^-\pi^+\pi^-$
264 ± 25			[34]	ARMSTRONG	93C	E760	$\overline{p}p \rightarrow \pi^0\eta\eta \rightarrow 6\gamma$
200 to 300				BREAKSTONE	93	SFM	$pp \rightarrow pp\pi^+\pi^-\pi^+\pi^-$
< 80 90% CL			[48]	ALDE	92D	GAM2	$38\ \pi^- p \rightarrow \eta\eta N^*$
181 ± 30			[49]	ARMSTRONG	89D	OMEG	$300\ pp \rightarrow ppK^+K^-$
104 ± 30			[49]	ARMSTRONG	89D	OMEG	$300\ pp \rightarrow ppK^0_S K^0_S$
30 ± 20			[35]	BOLONKIN	88	SPEC	$40\ \pi^- p \rightarrow K^0_S K^0_S n$
350 ± 150			[30]	BOLONKIN	88	SPEC	$40\ \pi^- p \rightarrow K^0_S K^0_S n$
148 ± 17			[50]	FALVARD	88	DM2	$J/\psi \rightarrow \phi K^+K^-, K^0_S K^0_S$
184 ± 6			[51]	FALVARD	88	DM2	$J/\psi \rightarrow \phi K^+K^-, K^0_S K^0_S$
$122 {}^{+74}_{-15}$			[52]	LONGACRE	86	RVUE	$22\ \pi^- p \rightarrow n2K^0_S$
200 ± 100				BURKE	82	MRK2	$J/\psi \rightarrow \gamma 2\rho$
$220 {}^{+100}_{-70}$			[53,54]	EDWARDS	82D	CBAL	$J/\psi \rightarrow \gamma 2\eta$
$200 {}^{+156}_{-9}$			[55]	ETKIN	82B	MPS	$23\ \pi^- p \rightarrow n2K^0_S$

[28] 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.
[29] Breit-Wigner width.
[30] $J^P = 0^+$.
[31] T-matrix pole.
[32] Supersedes BARBERIS 99 and BARBERIS 99B.
[33] $J^P = 0^+$, supersedes by ARMSTRONG 89D.

[34] No J^{PC} determination.
[35] $J^P = 2^+$.
[36] No J^{PC} determination.
[37] Systematic errors not estimated.
[38] This state may be different from $f_0(1710)$, see CLOSE 05.
[39] (Solution I)
[40] 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.
[41] (Solution I)
[42] Decaying to $f_0(1370)\pi\pi$.
[43] $J^P = 0^+$.
[44] Not seen by AMSLER 02.
[45] T-matrix pole, assuming $J^P = 0^+$
[46] No J^{PC} determination.
[47] From a fit to the 0^+ partial wave.
[48] ALDE 92D combines all the GAMS-2000 data.
[49] $J^P = 2^+$, (0^+ excluded).
[50] From an analysis ignoring interference with $f'_2(1525)$.
[51] From an analysis including interference with $f'_2(1525)$.
[52] 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.
[53] $J^P = 2^+$ preferred.
[54] From fit neglecting nearby $f'_2(1525)$. Replaced by BLOOM 83.
[55] 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	$\gamma\gamma$	
Γ_5	$\omega\omega$	seen

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

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

VALUE (eV)	*CL%*	*DOCUMENT ID*		*TECN*	*COMMENT*
<110	95	[56] BEHREND	89C	CELL	$\gamma\gamma \rightarrow K^0_S K^0_S$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<480	95	ALBRECHT	90G	ARG	$\gamma\gamma \rightarrow K^+K^-$
<280	95	[56] ALTHOFF	85B	TASS	$\gamma\gamma \rightarrow K\overline{K}\pi$

[56] Assuming helicity 2.

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

VALUE (keV)	CL%	DOCUMENT ID		TECN	COMMENT
<0.82	95	[57] BARATE	00E	ALEP	$\gamma\gamma \to \pi^+\pi^-$

[57] Assuming spin 0.

$f_0(1710)$ BRANCHING RATIOS

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

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.36 ± 0.12	ALBALADEJO	08	RVUE	
$0.38^{+0.09}_{-0.19}$	[58,59] LONGACRE	86	MPS	$22\ \pi^- p \to n 2K^0_S$

$\Gamma(\eta\eta)/\Gamma_{total}$ — 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
$0.18^{+0.03}_{-0.13}$	[58,59] LONGACRE	86	RVUE

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

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
not seen	AMSLER	02	CBAR	$0.9\ \overline{p}p \to \pi^0\eta\eta,\ \pi^0\pi^0\pi^0$
$0.039^{+0.002}_{-0.024}$	[58,59] LONGACRE	86	RVUE	

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.41^{+0.11}_{-0.17}}$		ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^+\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.32 ± 0.14		ALBALADEJO	08	RVUE	
<0.11	95	[60] ABLIKIM	04E	BES2	$J/\psi \to \omega K^+K^-$
$5.8\ ^{+9.1}_{-5.5}$		[61] ANISOVICH	02D	SPEC	Combined fit
$0.2\ \pm0.024\pm0.036$		BARBERIS	99D	OMEG	$450\ pp \to K^+K^-,\ \pi^+\pi^-$
0.39 ± 0.14		ARMSTRONG	91	OMEG	$300\ pp \to pp\pi\pi,\ ppK\overline{K}$

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.48\pm0.15}$		BARBERIS	00E		$450\ pp \to p_f\eta\eta p_s$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.46^{+0.70}_{-0.38}$		[61] ANISOVICH	02D	SPEC	Combined fit
<0.02	90	[62] PROKOSHKIN	91	GA24	$300\ \pi^- p \to \pi^- p\eta\eta$

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

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

[58] From a partial-wave analysis of data using a K-matrix formalism with 5 poles, but assuming spin 2.
[59] Fit with constrained inelasticity.
[60] Using data from ABLIKIM 04A.
[61] 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.
[62] Combining results of GAM4 with those of ARMSTRONG 89D.

$f_0(1710)$ REFERENCES

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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	V.V. Vladimirsky et al.	(ITEP, Moscow)
		Translated from YAF 69 515.		
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	F. Binon et al.	
		Translated from YAF 68 998.		
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.)
CHEKANOV	04	PL B578 33	S. Chekanov et al.	(ZEUS Collab.)
PDG	04	PL B592 1	S. Eidelman et al.	
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.	
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, 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.)
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)

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		Translated from YAF 66 772.		
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		Translated from YAF 65 1701.		
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		Translated from YAF 64 2091.		
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		Translated from YAF 62 513.		
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		Translated from YAF 62 396.		
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