$f_0(1710)$

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

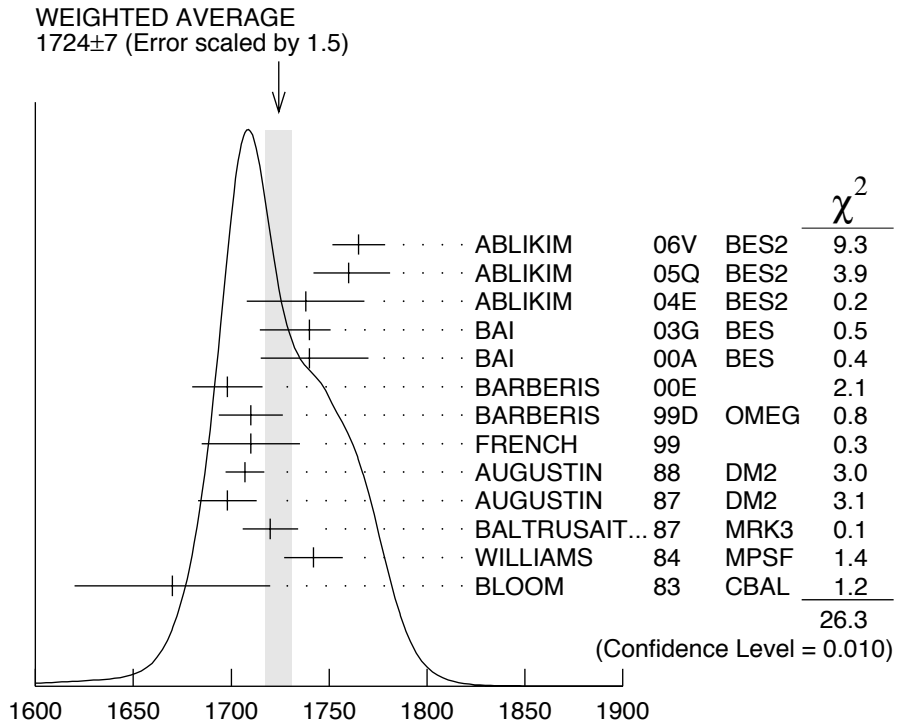
See our mini-review in the 2004 edition of this *Review*, PDG 04.

$f_0(1710)$ MASS

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1724± 7 OUR AVERAGE		Error includes scale factor of 1.5. See the ideogram below.			
$1765^{+\ 4}_{-\ 3}\pm13$		ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^+\pi^-$
$1760\pm15\ ^{+15}_{-10}$		[1] ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^-K^+K^-$
1738±30		ABLIKIM	04E	BES2	$J/\psi \to \omega K^+K^-$
$1740\pm\ 4\ ^{+10}_{-25}$		[2] BAI	03G	BES	$J/\psi \to \gamma K\overline{K}$
1740^{+30}_{-25}		[2] BAI	00A	BES	$J/\psi \to \gamma(\pi^+\pi^-\pi^+\pi^-)$
1698±18		[3] BARBERIS	00E		450 $pp \to p_f\eta\eta p_s$
1710±12 ±11		[4] BARBERIS	99D	OMEG	450 $pp \to K^+K^-, \pi^+\pi^-$
1710±25		[5] FRENCH	99		300 $pp \to p_f(K^+K^-)p_s$
1707±10		[6] AUGUSTIN	88	DM2	$J/\psi \to \gamma K^+K^-, K^0_SK^0_S$
1698±15		[6] AUGUSTIN	87	DM2	$J/\psi \to \gamma\pi^+\pi^-$
1720±10 ±10		[7] BALTRUSAIT..	87	MRK3	$J/\psi \to \gamma K^+K^-$
1742±15		[6] WILLIAMS	84	MPSF	200 $\pi^-N \to 2K^0_SX$
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	[8,9] UMAN	06	E835	5.2 $\overline{p}p \to \eta\eta\pi^0$
1776±15		VLADIMIRSK...	06	SPEC	40 $\pi^-p \to K^0_SK^0_Sn$
1790^{+40}_{-30}		[1] ABLIKIM	05	BES2	$J/\psi \to \phi\pi^+\pi^-$
1670±20		[8] BINON	05	GAMS	33 $\pi^-p \to \eta\eta n$
1726± 7	74	[9] CHEKANOV	04	ZEUS	$ep \to K^0_SK^0_SX$
1732+15		[10] ANISOVICH	03	RVUE	
1682±16		TIKHOMIROV	03	SPEC	40.0 $\pi^-C \to K^0_SK^0_SK^0_LX$
1670±26	3651	[2,11] NICHITIU	02	OBLX	
1770±12		[12,13] ANISOVICH	99B	SPEC	0.6–1.2 $p\overline{p} \to \eta\eta\pi^0$
1730±15		[2] BARBERIS	99	OMEG	450 $pp \to p_sp_fK^+K^-$
1750±20		[2] BARBERIS	99B	OMEG	450 $pp \to p_sp_f\pi^+\pi^-$
1750±30		[14] ANISOVICH	98B	RVUE	Compilation
1720±39		BAI	98H	BES	$J/\psi \to \gamma\pi^0\pi^0$
1775± 1.5	57	[15] BARKOV	98		$\pi^-p \to K^0_SK^0_Sn$
1690±11		[16] ABREU	96C	DLPH	$Z^0 \to K^+K^- + X$
$1696\pm\ 5\ ^{+\ 9}_{-34}$		[7] BAI	96C	BES	$J/\psi \to \gamma K^+K^-$
$1781\pm\ 8\ ^{+10}_{-31}$		[2] BAI	96C	BES	$J/\psi \to \gamma K^+K^-$
1768±14		BALOSHIN	95	SPEC	40 $\pi^-C \to K^0_SK^0_SX$

1750 ± 15		[17]	BUGG	95	MRK3	$J/\psi \to \gamma\pi^+\pi^-\pi^+\pi^-$
1620 ± 16		[7]	BUGG	95	MRK3	$J/\psi \to \gamma\pi^+\pi^-\pi^+\pi^-$
1748 ± 10		[6]	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		[18]	ALDE	92D	GAM2	$38\ \pi^- p \to \eta\eta n$
1713 ± 10		[19]	ARMSTRONG	89D	OMEG	$300\ pp \to ppK^+K^-$
1706 ± 10		[19]	ARMSTRONG	89D	OMEG	$300\ pp \to pp K^0_S K^0_S$
1700 ± 15		[7]	BOLONKIN	88	SPEC	$40\ \pi^- p \to K^0_S K^0_S n$
1720 ± 60		[2]	BOLONKIN	88	SPEC	$40\ \pi^- p \to K^0_S K^0_S n$
1638 ± 10		[20]	FALVARD	88	DM2	$J/\psi \to \phi K^+K^-,\ K^0_S K^0_S$
1690 ± 4		[21]	FALVARD	88	DM2	$J/\psi \to \phi K^+K^-,\ K^0_S K^0_S$
1755 ± 8		[22]	ALDE	86C	GAM2	$38\ \pi^- p \to n2\eta$
1730^{+2}_{-10}		[23]	LONGACRE	86	RVUE	$22\ \pi^- p \to n2K^0_S$
1650 ± 50			BURKE	82	MRK2	$J/\psi \to \gamma 2\rho$
1640 ± 50		[24,25]	EDWARDS	82D	CBAL	$J/\psi \to \gamma 2\eta$
1730 ± 10	± 20	[26]	ETKIN	82C	MPS	$23\ \pi^- p \to n2K^0_S$

[1] This state may be different from $f_0(1710)$, see CLOSE 05.
[2] $J^P = 0^+$.
[3] T-matrix pole.
[4] Supersedes BARBERIS 99 and BARBERIS 99B.
[5] $J^P = 0^+$, supersedes by ARMSTRONG 89D.
[6] No J^{PC} determination.
[7] $J^P = 2^+$.
[8] Breit-Wigner mass.
[9] Systematic errors not estimated.
[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] $J^P = 0^+$.
[13] Not seen by AMSLER 02.
[14] T-matrix pole, assuming $J^P = 0^+$
[15] No J^{PC} determination.
[16] No J^{PC} determination, width not determined.
[17] From a fit to the 0^+ partial wave.
[18] ALDE 92D combines all the GAMS-2000 data.
[19] $J^P = 2^+$, superseded by FRENCH 99.
[20] From an analysis ignoring interference with $f'_2(1525)$.
[21] From an analysis including interference with $f'_2(1525)$.
[22] Superseded by ALDE 92D.
[23] 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.
[24] $J^P = 2^+$ preferred.
[25] From fit neglecting nearby $f'_2(1525)$. Replaced by BLOOM 83.
[26] Superseded by LONGACRE 86.



$f_0(1710)$ WIDTH

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
137 ± 8 OUR AVERAGE		Error includes scale factor of 1.1.			
145 ± 8 ±69		ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^+\pi^-$
125 ± 25 $^{+10}_{-15}$	[27]	ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+K^-$
125 ± 20		ABLIKIM	04E	BES2	$J/\psi \to \omega K^+K^-$
166 $^{+5}_{-8}$ $^{+15}_{-10}$	[28]	BAI	03G	BES	$J/\psi \to \gamma K\overline{K}$
120 $^{+50}_{-40}$	[28]	BAI	00A	BES	$J/\psi \to \gamma(\pi^+\pi^-\pi^+\pi^-)$
120 ± 26	[29]	BARBERIS	00E		450 $pp \to p_f\eta\eta p_s$
126 ± 16 ±18	[30]	BARBERIS	99D	OMEG	450 $pp \to K^+K^-, \pi^+\pi^-$
105 ± 34	[31]	FRENCH	99		300 $pp \to p_f(K^+K^-)p_s$
166.4± 33.2	[32]	AUGUSTIN	88	DM2	$J/\psi \to \gamma K^+K^-, K^0_S K^0_S$
136 ± 28	[32]	AUGUSTIN	87	DM2	$J/\psi \to \gamma\pi^+\pi^-$
130 ± 20	[33]	BALTRUSAIT...	87	MRK3	$J/\psi \to \gamma K^+K^-$
57 ± 38	[6]	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 $\overline{p}p \to K^+K^-\pi^0$
188 ± 13	80k [27,34]	UMAN	06	E835	5.2 $\overline{p}p \to \eta\eta\pi^0$

250	$\pm$ 30				VLADIMIRSK...06	SPEC	40 $\pi^- p \to K^0_S K^0_S n$	
270	$^{+\ 60}_{-\ 30}$			[35]	ABLIKIM 05	BES2	$J/\psi \to \phi\pi^+\pi^-$	
260	$\pm$ 50			[27]	BINON 05	GAMS	33 $\pi^- p \to \eta\eta n$	
38	$^{+\ 20}_{-\ 14}$		74	[34]	CHEKANOV 04	ZEUS	$ep \to K^0_S K^0_S X$	
144	$\pm$ 30			[36,37]	ANISOVICH 03	RVUE		
320	$^{+\ 50}_{-\ 20}$			[37,38]	ANISOVICH 03	RVUE		
102	$\pm$ 26				TIKHOMIROV 03	SPEC	40.0 π^- C $\to K^0_S K^0_S K^0_L$ X	
267	$\pm$ 44		3651	[28,39]	NICHITIU 02	OBLX		
220	$\pm$ 40			[40,41]	ANISOVICH 99B	SPEC	0.6–1.2 $p\overline{p} \to \eta\eta\pi^0$	
100	$\pm$ 25			[28]	BARBERIS 99	OMEG	450 $pp \to p_s p_f K^+ K^-$	
160	$\pm$ 30			[28]	BARBERIS 99B	OMEG	450 $pp \to p_s p_f \pi^+\pi^-$	
250	$\pm$140			[42]	ANISOVICH 98B	RVUE	Compilation	
30	$\pm$ 7		57	[43]	BARKOV 98		$\pi^- p \to K^0_S K^0_S n$	
103	$\pm$ 18	$^{+30}_{-11}$		[33]	BAI 96C	BES	$J/\psi \to \gamma K^+ K^-$	
85	$\pm$ 24	$^{+22}_{-19}$		[28]	BAI 96C	BES	$J/\psi \to \gamma K^+ K^-$	
56	$\pm$ 19				BALOSHIN 95	SPEC	40 π^- C $\to K^0_S K^0_S$ X	
160	$\pm$ 40			[44]	BUGG 95	MRK3	$J/\psi \to \gamma\pi^+\pi^-\pi^+\pi^-$	
160	$^{+\ 60}_{-\ 20}$			[33]	BUGG 95	MRK3	$J/\psi \to \gamma\pi^+\pi^-\pi^+\pi^-$	
264	$\pm$ 25			[32]	ARMSTRONG 93C	E760	$\overline{p}p \to \pi^0\eta\eta \to 6\gamma$	
200	to 300				BREAKSTONE 93	SFM	$pp \to pp\pi^+\pi^-\pi^+\pi^-$	
$<$ 80	90% CL			[45]	ALDE 92D	GAM2	38 $\pi^- p \to \eta\eta N^*$	
181	$\pm$ 30			[46]	ARMSTRONG 89D	OMEG	300 $pp \to pp K^+ K^-$	
104	$\pm$ 30			[46]	ARMSTRONG 89D	OMEG	300 $pp \to pp K^0_S K^0_S$	
30	$\pm$ 20			[33]	BOLONKIN 88	SPEC	40 $\pi^- p \to K^0_S K^0_S n$	
350	$\pm$150			[28]	BOLONKIN 88	SPEC	40 $\pi^- p \to K^0_S K^0_S n$	
148	$\pm$ 17			[47]	FALVARD 88	DM2	$J/\psi \to \phi K^+ K^-$, $K^0_S K^0_S$	
184	$\pm$ 6			[48]	FALVARD 88	DM2	$J/\psi \to \phi K^+ K^-$, $K^0_S K^0_S$	
122	$^{+\ 74}_{-\ 15}$			[49]	LONGACRE 86	RVUE	22 $\pi^- p \to n2K^0_S$	
200	$\pm$100				BURKE 82	MRK2	$J/\psi \to \gamma 2\rho$	
220	$^{+100}_{-\ 70}$			[50,51]	EDWARDS 82D	CBAL	$J/\psi \to \gamma 2\eta$	
200	$^{+156}_{-\ \ 9}$			[52]	ETKIN 82B	MPS	23 $\pi^- p \to n2K^0_S$	

[27] Breit-Wigner width.
[28] $J^P = 0^+$.
[29] T-matrix pole.
[30] Supersedes BARBERIS 99 and BARBERIS 99B.
[31] $J^P = 0^+$, supersedes by ARMSTRONG 89D.
[32] No J^{PC} determination.
[33] $J^P = 2^+$.
[34] Systematic errors not estimated.
[35] This state may be different from $f_0(1710)$, see CLOSE 05.
[36] (Solution I)

[37] 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.

[38] (Solution I)

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

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

[41] Not seen by AMSLER 02.

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

[43] No J^{PC} determination.

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

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

[46] $J^P = 2^+$, (0^+ excluded).

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

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

[49] 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.

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

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

[52] 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

$f_0(1710)$ Γ(i)$\Gamma(\gamma\gamma)/\Gamma$(total)

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

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<110	95	[54] BEHREND	89C	CELL	$\gamma\gamma \to K^0_S K^0_S$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<480	95	ALBRECHT	90G	ARG	$\gamma\gamma \to K^+K^-$
<280	95	[54] ALTHOFF	85B	TASS	$\gamma\gamma \to K\overline{K}\pi$

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

VALUE (keV)	CL%	DOCUMENT ID		TECN	COMMENT
<0.82	95	[53] BARATE	00E	ALEP	$\gamma\gamma \to \pi^+\pi^-$

[53] Assuming spin 0.

[54] Assuming helicity 2.

$f_0(1710)$ 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. • • •				
$0.38^{+0.09}_{-0.19}$	[55,56] 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. • • •			
$0.18^{+0.03}_{-0.13}$	[55,56] 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 $\overline{p}p \to \pi^0\eta\eta$, $\pi^0\pi^0\pi^0$
$0.039^{+0.002}_{-0.024}$	[55,56] LONGACRE	86	RVUE	

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$0.41^{+0.11}_{-0.17}$		ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^+\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
< 0.11	95	[57] ABLIKIM	04E	BES2	$J/\psi \to \omega K^+K^-$
$5.8\ ^{+9.1}_{-5.5}$		[58] ANISOVICH	02D	SPEC	Combined fit
$0.2\ \pm 0.024 \pm 0.036$		BARBERIS	99D	OMEG	450 $pp \to K^+K^-, \pi^+\pi^-$
0.39 ± 0.14		ARMSTRONG	91	OMEG	300 $pp \to pp\pi\pi$, $ppK\overline{K}$

$\Gamma(\eta\eta)/\Gamma(K\overline{K})$ 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. • • •					
$0.46^{+0.70}_{-0.38}$		[58] ANISOVICH	02D	SPEC	Combined fit
<0.02	90	[59] 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	$J/\psi \to \gamma\omega\omega$

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

$f_0(1710)$ REFERENCES

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)
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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+)
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