$f_0(1370)$

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

See also the mini-reviews on scalar mesons under $f_0(600)$ (see the index for the page number) and on non-$q\overline{q}$ candidates in PDG 06, Journal of Physics, G **33** 1 (2006).

f_0(1370) T-MATRIX POLE POSITION

Note that $\Gamma \approx 2\ \text{Im}(\sqrt{s_{\text{pole}}})$.

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
(1200–1500)−*i*(150–250) OUR ESTIMATE				
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$(1373 \pm 15)-i(137 \pm 10)$	[1] BARGIOTTI	03	OBLX	$\overline{p}p$
$(1302 \pm 17)-i(166 \pm 18)$	[2] BARBERIS	00C		450 $pp \rightarrow p_f 4\pi p_s$
$(1312 \pm 25 \pm 10)-i(109 \pm 22 \pm 15)$	BARBERIS	99D	OMEG	450 $pp \rightarrow K^+K^-, \pi^+\pi^-$
$(1406 \pm 19)-i(80 \pm 6)$	[3] KAMINSKI	99	RVUE	$\pi\pi \rightarrow \pi\pi, K\overline{K}, \sigma\sigma$
$(1300 \pm 20)-i(120 \pm 20)$	ANISOVICH	98B	RVUE	Compilation
$(1290 \pm 15)-i(145 \pm 15)$	BARBERIS	97B	OMEG	450 $pp \rightarrow pp2(\pi^+\pi^-)$
$(1548 \pm 40)-i(560 \pm 40)$	BERTIN	97C	OBLX	0.0 $\overline{p}p \rightarrow \pi^+\pi^-\pi^0$
$(1380 \pm 40)-i(180 \pm 25)$	ABELE	96B	CBAR	0.0 $\overline{p}p \rightarrow \pi^0 K^0_L K^0_L$
$(1300 \pm 15)-i(115 \pm 8)$	BUGG	96	RVUE	
$(1330 \pm 50)-i(150 \pm 40)$	[4] AMSLER	95B	CBAR	$\overline{p}p \rightarrow 3\pi^0$
$(1360 \pm 35)-i(150\text{–}300)$	[4] AMSLER	95C	CBAR	$\overline{p}p \rightarrow \pi^0\eta\eta$
$(1390 \pm 30)-i(190 \pm 40)$	[5] AMSLER	95D	CBAR	$\overline{p}p \rightarrow 3\pi^0, \pi^0\eta\eta, \pi^0\pi^0\eta$
$1346 - i249$	[6,7] JANSSEN	95	RVUE	$\pi\pi \rightarrow \pi\pi, K\overline{K}$
$1214 - i168$	[7,8] TORNQVIST	95	RVUE	$\pi\pi \rightarrow \pi\pi, K\overline{K}, K\pi, \eta\pi$
$1364 - i139$	AMSLER	94D	CBAR	$\overline{p}p \rightarrow \pi^0\pi^0\eta$
$(1365^{+20}_{-55})-i(134 \pm 35)$	ANISOVICH	94	CBAR	$\overline{p}p \rightarrow 3\pi^0, \pi^0\eta\eta$
$(1340 \pm 40)-i(127^{+30}_{-20})$	[9] BUGG	94	RVUE	$\overline{p}p \rightarrow 3\pi^0, \eta\eta\pi^0, \eta\pi^0\pi^0$
$(1430 \pm 5)-i(73 \pm 13)$	[10] KAMINSKI	94	RVUE	$\pi\pi \rightarrow \pi\pi, K\overline{K}$
$1515 - i214$	[7,11] ZOU	93	RVUE	$\pi\pi \rightarrow \pi\pi, K\overline{K}$
$1420 - i220$	[12] AU	87	RVUE	$\pi\pi \rightarrow \pi\pi, K\overline{K}$

[1] Coupled channel analysis of $\pi^+\pi^-\pi^0$, $K^+K^-\pi^0$, and $K^\pm K^0_S\pi^\mp$.

[2] Average between $\pi^+\pi^-2\pi^0$ and $2(\pi^+\pi^-)$.

[3] T-matrix pole on sheet $---$.

[4] Supersedes ANISOVICH 94.

[5] Coupled-channel analysis of $\overline{p}p \rightarrow 3\pi^0$, $\pi^0\eta\eta$, and $\pi^0\pi^0\eta$ on sheet IV. Demonstrates explicitly that $f_0(600)$ and $f_0(1370)$ are two different poles.

[6] Analysis of data from FALVARD 88.

[7] The pole is on Sheet III. Demonstrates explicitly that $f_0(600)$ and $f_0(1370)$ are two different poles.

[8] Uses data from BEIER 72B, OCHS 73, HYAMS 73, GRAYER 74, ROSSELET 77, CASON 83, ASTON 88, and ARMSTRONG 91B. Coupled channel analysis with flavor symmetry and all light two-pseudoscalars systems.
[9] Reanalysis of ANISOVICH 94 data.
[10] T-matrix pole on sheet III.
[11] Analysis of data from OCHS 73, GRAYER 74, and ROSSELET 77.
[12] Analysis of data from OCHS 73,GRAYER 74, BECKER 79, and CASON 83.

$f_0(1370)$ BREIT-WIGNER MASS OR K-MATRIX POLE PARAMETER

VALUE (MeV)	DOCUMENT ID
1200 to 1500 OUR ESTIMATE	

$\pi\pi$ MODE

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1259 ± 55	2.6k	BONVICINI	07	CLEO	$D^+ \to \pi^-\pi^+\pi^+$
1449 ± 13	4286	[13] GARMASH	06	BELL	$B^+ \to K^+\pi^+\pi^-$
1350 ± 50		ABLIKIM	05	BES2	$J/\psi \to \phi\pi^+\pi^-$
$1265\pm30^{+20}_{-35}$		ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^- K^+ K^-$
$1434\pm18\pm9$	848	AITALA	01A	E791	$D_s^+ \to \pi^-\pi^+\pi^+$
1308 ± 10		BARBERIS	99B	OMEG	450 $pp \to p_s p_f \pi^+\pi^-$
1315 ± 50		BELLAZZINI	99	GAM4	450 $pp \to pp\pi^0\pi^0$
1315 ± 30		ALDE	98	GAM4	100 $\pi^- p \to \pi^0\pi^0 n$
1280 ± 55		BERTIN	98	OBLX	0.05–0.405 $\overline{n}p \to \pi^+\pi^+\pi^-$
1186		[14,15] TORNQVIST	95	RVUE	$\pi\pi \to \pi\pi$, $K\overline{K}$, $K\pi$, $\eta\pi$
1472 ± 12		ARMSTRONG	91	OMEG	300 $pp \to pp\pi\pi$, $ppK\overline{K}$
1275 ± 20		BREAKSTONE	90	SFM	62 $pp \to pp\pi^+\pi^-$
1420 ± 20		AKESSON	86	SPEC	63 $pp \to pp\pi^+\pi^-$
1256		FROGGATT	77	RVUE	$\pi^+\pi^-$ channel

[13] Also observed by GARMASH 07 in $B^0 \to K_S^0\pi^+\pi^-$ decays. Supersedes GARMASH 05.
[14] Uses data from BEIER 72B, OCHS 73, HYAMS 73, GRAYER 74, ROSSELET 77, CASON 83, ASTON 88, and ARMSTRONG 91B. Coupled channel analysis with flavor symmetry and all light two-pseudoscalars systems.
[15] Also observed by ASNER 00 in $\tau^- \to \pi^-\pi^0\pi^0\nu_\tau$ decays

$K\overline{K}$ MODE

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1440 ± 6	VLADIMIRSK...	06	SPEC	40 $\pi^- p \to K_S^0 K_S^0 n$
1391 ± 10	TIKHOMIROV	03	SPEC	40.0 π^- C $\to K_S^0 K_S^0 K_L^0$ X
1440 ± 50	BOLONKIN	88	SPEC	40 $\pi^- p \to K_S^0 K_S^0 n$
1463 ± 9	ETKIN	82B	MPS	23 $\pi^- p \to n2K_S^0$
1425 ± 15	WICKLUND	80	SPEC	6 $\pi N \to K^+K^- N$
~ 1300	POLYCHRO...	79	STRC	7 $\pi^- p \to n2K_S^0$

4π MODE $2(\pi\pi)_S+\rho\rho$

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1395±40		ABELE	01	CBAR	0.0 $\overline{p}d \rightarrow \pi^- 4\pi^0 p$
1374±38		AMSLER	94	CBAR	0.0 $\overline{p}p \rightarrow \pi^+\pi^- 3\pi^0$
1345±12		ADAMO	93	OBLX	$\overline{n}p \rightarrow 3\pi^+ 2\pi^-$
1386±30		GASPERO	93	DBC	0.0 $\overline{p}n \rightarrow 2\pi^+ 3\pi^-$
∼ 1410	5751	[16] BETTINI	66	DBC	0.0 $\overline{p}n \rightarrow 2\pi^+ 3\pi^-$

[16] $\rho\rho$ dominant.

$\eta\eta$ MODE

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1430	AMSLER	92	CBAR	0.0 $\overline{p}p \rightarrow \pi^0\eta\eta$
1220±40	ALDE	86D	GAM4	100 $\pi^- p \rightarrow n 2\eta$

COUPLED CHANNEL MODE

VALUE (MeV)	*DOCUMENT ID*		*TECN*
• • • We do not use the following data for averages, fits, limits, etc. • • •			
1306±20	[17] ANISOVICH	03	RVUE

[17] K-matrix pole 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.

$f_0(1370)$ BREIT-WIGNER WIDTH

VALUE (MeV)	*DOCUMENT ID*
200 to 500 OUR ESTIMATE	

$\pi\pi$ MODE

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •					
298± 21	2.6k	BONVICINI	07	CLEO	$D^+ \rightarrow \pi^-\pi^+\pi^+$
126± 25	4286	[18] GARMASH	06	BELL	$B^+ \rightarrow K^+\pi^+\pi^-$
265± 40		ABLIKIM	05	BES2	$J/\psi \rightarrow \phi\pi^+\pi^-$
$350\pm100^{+105}_{-60}$		ABLIKIM	05Q	BES2	$\psi(2S) \rightarrow \gamma\pi^+\pi^- K^+K^-$
173± 32± 6	848	AITALA	01A	E791	$D^+_s \rightarrow \pi^-\pi^+\pi^+$
222± 20		BARBERIS	99B	OMEG	450 $pp \rightarrow p_s p_f \pi^+\pi^-$
255± 60		BELLAZZINI	99	GAM4	450 $pp \rightarrow pp\pi^0\pi^0$
190± 50		ALDE	98	GAM4	100 $\pi^- p \rightarrow \pi^0\pi^0 n$
323± 13		BERTIN	98	OBLX	0.05–0.405 $\overline{n}p \rightarrow \pi^+\pi^+\pi^-$
350		[19,20] TORNQVIST	95	RVUE	$\pi\pi \rightarrow \pi\pi$, $K\overline{K}$, $K\pi$, $\eta\pi$
195± 33		ARMSTRONG	91	OMEG	300 $pp \rightarrow pp\pi\pi$, $ppK\overline{K}$
285± 60		BREAKSTONE	90	SFM	62 $pp \rightarrow pp\pi^+\pi^-$
460± 50		AKESSON	86	SPEC	63 $pp \rightarrow pp\pi^+\pi^-$
∼ 400		[21] FROGGATT	77	RVUE	$\pi^+\pi^-$ channel

[18] Also observed by GARMASH 07 in $B^0 \to K^0_S \pi^+ \pi^-$ decays. Supersedes GARMASH 05.

[19] Uses data from BEIER 72B, OCHS 73, HYAMS 73, GRAYER 74, ROSSELET 77, CASON 83, ASTON 88, and ARMSTRONG 91B. Coupled channel analysis with flavor symmetry and all light two-pseudoscalars systems.

[20] Also observed by ASNER 00 in $\tau^- \to \pi^- \pi^0 \pi^0 \nu_\tau$ decays

[21] Width defined as distance between 45 and 135° phase shift.

$K\overline{K}$ MODE

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
121± 15	VLADIMIRSK...	06	SPEC	$40\ \pi^- p \to K^0_S K^0_S n$
55± 26	TIKHOMIROV	03	SPEC	$40.0\ \pi^- C \to K^0_S K^0_S K^0_L X$
250± 80	BOLONKIN	88	SPEC	$40\ \pi^- p \to K^0_S K^0_S n$
$118^{+138}_{-\ 16}$	ETKIN	82B	MPS	$23\ \pi^- p \to n 2K^0_S$
160± 30	WICKLUND	80	SPEC	$6\ \pi N \to K^+ K^- N$
~ 150	POLYCHRO...	79	STRC	$7\ \pi^- p \to n 2K^0_S$

4π MODE $2(\pi\pi)_S + \rho\rho$

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •					
275±55		ABELE	01	CBAR	$0.0\ \overline{p} d \to \pi^- 4\pi^0 p$
375±61		AMSLER	94	CBAR	$0.0\ \overline{p} p \to \pi^+ \pi^- 3\pi^0$
398±26		ADAMO	93	OBLX	$\overline{n} p \to 3\pi^+ 2\pi^-$
310±50		GASPERO	93	DBC	$0.0\ \overline{p} n \to 2\pi^+ 3\pi^-$
~ 90	5751	[22] BETTINI	66	DBC	$0.0\ \overline{p} n \to 2\pi^+ 3\pi^-$

[22] $\rho\rho$ dominant.

$\eta\eta$ MODE

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
250	AMSLER	92	CBAR	$0.0\ \overline{p} p \to \pi^0 \eta\eta$
320±40	ALDE	86D	GAM4	$100\ \pi^- p \to n 2\eta$

COUPLED CHANNEL MODE

VALUE (MeV)	*DOCUMENT ID*		*TECN*
• • • We do not use the following data for averages, fits, limits, etc. • • •			
147^{+30}_{-50}	[23] ANISOVICH	03	RVUE

[23] K-matrix pole 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.

$f_0(1370)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\pi\pi$	seen
Γ_2	4π	seen
Γ_3	$4\pi^0$	seen
Γ_4	$2\pi^+ 2\pi^-$	seen
Γ_5	$\pi^+\pi^- 2\pi^0$	seen
Γ_6	$\rho\rho$	dominant
Γ_7	$2(\pi\pi)_{S\text{-wave}}$	seen
Γ_8	$\pi(1300)\pi$	seen
Γ_9	$a_1(1260)\pi$	seen
Γ_{10}	$\eta\eta$	seen
Γ_{11}	$K\overline{K}$	seen
Γ_{12}	$K\overline{K}n\pi$	not seen
Γ_{13}	6π	not seen
Γ_{14}	$\omega\omega$	not seen
Γ_{15}	$\gamma\gamma$	seen
Γ_{16}	e^+e^-	not seen

$f_0(1370)$ PARTIAL WIDTHS

$\Gamma(\gamma\gamma)$ — Γ_{15}

See $\gamma\gamma$ widths under $f_0(600)$ and MORGAN 90.

$\Gamma(e^+e^-)$ — Γ_{16}

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<20	90	VOROBYEV	88	ND	$e^+e^- \to \pi^0\pi^0$

$f_0(1370)$ BRANCHING RATIOS

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

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.26 ± 0.09	BUGG	96	RVUE	
<0.15	[24] AMSLER	94	CBAR	$\overline{p}p \to \pi^+\pi^- 3\pi^0$
<0.06	GASPERO	93	DBC	$0.0\ \overline{p}n \to$ hadrons

[24] Using AMSLER 95B ($3\pi^0$).

$\Gamma(4\pi)/\Gamma_{total}$ — $\Gamma_2/\Gamma = (\Gamma_3+\Gamma_4+\Gamma_5)/\Gamma$

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
>0.72	GASPERO	93	DBC	$0.0\ \overline{p}n \to$ hadrons

$\Gamma(4\pi^0)/\Gamma(4\pi)$ — Γ_3/Γ_2

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
seen	ABELE	96	CBAR	0.0 $\overline{p}p \to 5\pi^0$
0.068±0.005	[25] GASPERO	93	DBC	0.0 $\overline{p}n \to$ hadrons

[25] Model-dependent evaluation.

$\Gamma(2\pi^+2\pi^-)/\Gamma(4\pi)$ — $\Gamma_4/\Gamma_2 = \Gamma_4/(\Gamma_3+\Gamma_4+\Gamma_5)$

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.420±0.014	[26] GASPERO	93	DBC	0.0 $\overline{p}n \to 2\pi^+3\pi^-$

[26] Model-dependent evaluation.

$\Gamma(\pi^+\pi^-2\pi^0)/\Gamma(4\pi)$ — $\Gamma_5/\Gamma_2 = \Gamma_5/(\Gamma_3+\Gamma_4+\Gamma_5)$

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.512±0.019	[27] GASPERO	93	DBC	0.0 $\overline{p}n \to$ hadrons

[27] Model-dependent evaluation.

$\Gamma(\rho\rho)/\Gamma(4\pi)$ — Γ_6/Γ_2

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.26±0.07	ABELE	01B	CBAR	0.0 $\overline{p}d \to 5\pi p$

$\Gamma(2(\pi\pi)_{S\text{-wave}})/\Gamma(\pi\pi)$ — Γ_7/Γ_1

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
5.6±2.6	[28] ABELE	01	CBAR	0.0 $\overline{p}d \to \pi^-4\pi^0 p$

[28] From the combined data of ABELE 96 and ABELE 96C.

$\Gamma(2(\pi\pi)_{S\text{-wave}})/\Gamma(4\pi)$ — Γ_7/Γ_2

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.51±0.09	ABELE	01B	CBAR	0.0 $\overline{p}d \to 5\pi p$

$\Gamma(\rho\rho)/\Gamma(2(\pi\pi)_{S\text{-wave}})$ — Γ_6/Γ_7

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
large	BARBERIS	00C		450 $pp \to p_f 4\pi p_s$
1.6 ±0.2	AMSLER	94	CBAR	$\overline{p}p \to \pi^+\pi^-3\pi^0$
∼ 0.65	GASPERO	93	DBC	0.0 $\overline{p}n \to$ hadrons

$\Gamma(\pi(1300)\pi)/\Gamma(4\pi)$ — Γ_8/Γ_2

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.17±0.06	ABELE	01B	CBAR	0.0 $\overline{p}d \to 5\pi p$

$\Gamma(a_1(1260)\pi)/\Gamma(4\pi)$ Γ_9/Γ_2

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.06 ± 0.02	ABELE	01B	CBAR	0.0 $\overline{p}d \rightarrow 5\pi p$

$\Gamma(\eta\eta)/\Gamma(4\pi)$ $\Gamma_{10}/\Gamma_2 = \Gamma_{10}/(\Gamma_3+\Gamma_4+\Gamma_5)$

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$(28\ \pm11\ )\times10^{-3}$	[29] ANISOVICH	02D	SPEC	Combined fit
$(4.7\pm\ 2.0)\times10^{-3}$	BARBERIS	00E		450 $pp \rightarrow p_f \eta\eta p_s$

[29] From a combined K-matrix analysis of Crystal Barrel (0. $p\overline{p} \rightarrow \pi^0\pi^0\pi^0$, $\pi^0\eta\eta$, $\pi^0\pi^0\eta$), GAMS ($\pi p \rightarrow \pi^0\pi^0 n$, $\eta\eta n$, $\eta\eta' n$), and BNL ($\pi p \rightarrow K\overline{K}n$) data.

$\Gamma(K\overline{K})/\Gamma_{\text{total}}$ Γ_{11}/Γ

VALUE	DOCUMENT ID		TECN
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.35 ± 0.13	BUGG	96	RVUE

$\Gamma(K\overline{K})/\Gamma(\pi\pi)$ Γ_{11}/Γ_1

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.08 ± 0.08	ABLIKIM	05	BES2	$J/\psi \rightarrow \phi\pi^+\pi^-$, ϕK^+K^-
0.91 ± 0.20	[30] BARGIOTTI	03	OBLX	$\overline{p}p$
0.12 ± 0.06	[31] ANISOVICH	02D	SPEC	Combined fit
$0.46\pm0.15\pm0.11$	BARBERIS	99D	OMEG	450 $pp \rightarrow K^+K^-$, $\pi^+\pi^-$

[30] Coupled channel analysis of $\pi^+\pi^-\pi^0$, $K^+K^-\pi^0$, and $K^\pm K^0_S\pi^\mp$.

[31] From a combined K-matrix analysis of Crystal Barrel (0. $p\overline{p} \rightarrow \pi^0\pi^0\pi^0$, $\pi^0\eta\eta$, $\pi^0\pi^0\eta$), GAMS ($\pi p \rightarrow \pi^0\pi^0 n$, $\eta\eta n$, $\eta\eta' n$), and BNL ($\pi p \rightarrow K\overline{K}n$) data.

$\Gamma(K\overline{K}n\pi)/\Gamma_{\text{total}}$ Γ_{12}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.03	GASPERO	93	DBC	0.0 $\overline{p}n \rightarrow$ hadrons

$\Gamma(6\pi)/\Gamma_{\text{total}}$ Γ_{13}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.22	GASPERO	93	DBC	0.0 $\overline{p}n \rightarrow$ hadrons

$\Gamma(\omega\omega)/\Gamma_{\text{total}}$ Γ_{14}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.13	GASPERO	93	DBC	0.0 $\overline{p}n \rightarrow$ hadrons

$f_0(1370)$ REFERENCES

BONVICINI	07	PR D76 012001	G. Bonvicini *et al.*	(CLEO Collab.)
GARMASH	07	PR D75 012006	A. Garmash *et al.*	(BELLE Collab.)
GARMASH	06	PRL 96 251803	A. Garmash *et al.*	(BELLE Collab.)
PDG	06	JPG 33 1	W.-M. Yao *et al.*	(PDG Collab.)
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.)
GARMASH	05	PR D71 092003	A. Garmash *et al.*	(BELLE Collab.)
ANISOVICH	03	EPJ A16 229	V.V. Anisovich *et al.*	
BARGIOTTI	03	EPJ C26 371	M. Bargiotti *et al.*	(OBELIX Collab.)
TIKHOMIROV	03	PAN 66 828	G.D. Tikhomirov *et al.*	
		Translated from YAF 66 860.		
ANISOVICH	02D	PAN 65 1545	V.V. Anisovich *et al.*	
		Translated from YAF 65 1583.		
ABELE	01	EPJ C19 667	A. Abele *et al.*	(Crystal Barrel Collab.)
ABELE	01B	EPJ C21 261	A. Abele *et al.*	(Crystal Barrel Collab.)
AITALA	01A	PRL 86 765	E.M. Aitala *et al.*	(FNAL E791 Collab.)
ASNER	00	PR D61 012002	D.M. Asner *et al.*	(CLEO Collab.)
BARBERIS	00C	PL B471 440	D. Barberis *et al.*	(WA 102 Collab.)
BARBERIS	00E	PL B479 59	D. Barberis *et al.*	(WA 102 Collab.)
BARBERIS	99B	PL B453 316	D. Barberis *et al.*	(Omega Expt.)
BARBERIS	99D	PL B462 462	D. Barberis *et al.*	(Omega Expt.)
BELLAZZINI	99	PL B467 296	R. Bellazzini *et al.*	
KAMINSKI	99	EPJ C9 141	R. Kaminski, L. Lesniak, B. Loiseau	(CRAC, PARIN)
ALDE	98	EPJ A3 361	D. Alde *et al.*	(GAM4 Collab.)
Also		PAN 62 405	D. Alde *et al.*	(GAMS Collab.)
		Translated from YAF 62 446.		
ANISOVICH	98B	SPU 41 419	V.V. Anisovich *et al.*	
		Translated from UFN 168 481.		
BERTIN	98	PR D57 55	A. Bertin *et al.*	(OBELIX Collab.)
BARBERIS	97B	PL B413 217	D. Barberis *et al.*	(WA 102 Collab.)
BERTIN	97C	PL B408 476	A. Bertin *et al.*	(OBELIX Collab.)
ABELE	96	PL B380 453	A. Abele *et al.*	(Crystal Barrel Collab.)
ABELE	96B	PL B385 425	A. Abele *et al.*	(Crystal Barrel Collab.)
ABELE	96C	NP A609 562	A. Abele *et al.*	(Crystal Barrel Collab.)
BUGG	96	NP B471 59	D.V. Bugg, A.V. Sarantsev, B.S. Zou	(LOQM, PNPI)
AMSLER	95B	PL B342 433	C. Amsler *et al.*	(Crystal Barrel Collab.)
AMSLER	95C	PL B353 571	C. Amsler *et al.*	(Crystal Barrel Collab.)
AMSLER	95D	PL B355 425	C. Amsler *et al.*	(Crystal Barrel Collab.)
JANSSEN	95	PR D52 2690	G. Janssen *et al.*	(STON, ADLD, JULI)
TORNQVIST	95	ZPHY C68 647	N.A. Tornqvist	(HELS)
AMSLER	94	PL B322 431	C. Amsler *et al.*	(Crystal Barrel Collab.) JPC
AMSLER	94D	PL B333 277	C. Amsler *et al.*	(Crystal Barrel Collab.)
ANISOVICH	94	PL B323 233	V.V. Anisovich *et al.*	(Crystal Barrel Collab.) JPC
BUGG	94	PR D50 4412	D.V. Bugg *et al.*	(LOQM)
KAMINSKI	94	PR D50 3145	R. Kaminski, L. Lesniak, J.P. Maillet	(CRAC+)
ADAMO	93	NP A558 13C	A. Adamo *et al.*	(OBELIX Collab.) JPC
GASPERO	93	NP A562 407	M. Gaspero	(ROMAI) JPC
ZOU	93	PR D48 R3948	B.S. Zou, D.V. Bugg	(LOQM)
AMSLER	92	PL B291 347	C. Amsler *et al.*	(Crystal Barrel Collab.)
ARMSTRONG	91	ZPHY C51 351	T.A. Armstrong *et al.*	(ATHU, BARI, BIRM+)
ARMSTRONG	91B	ZPHY C52 389	T.A. Armstrong *et al.*	(ATHU, BARI, BIRM+)
BREAKSTONE	90	ZPHY C48 569	A.M. Breakstone *et al.*	(ISU, BGNA, CERN+)
MORGAN	90	ZPHY C48 623	D. Morgan, M.R. Pennington	(RAL, DURH)
ASTON	88	NP B296 493	D. Aston *et al.*	(SLAC, NAGO, CINC, INUS)
BOLONKIN	88	NP B309 426	B.V. Bolonkin *et al.*	(ITEP, SERP)
FALVARD	88	PR D38 2706	A. Falvard *et al.*	(CLER, FRAS, LALO+)
VOROBYEV	88	SJNP 48 273	P.V. Vorobiev *et al.*	(NOVO)
		Translated from YAF 48 436.		
AU	87	PR D35 1633	K.L. Au, D. Morgan, M.R. Pennington	(DURH, RAL)
AKESSON	86	NP B264 154	T. Akesson *et al.*	(Axial Field Spec. Collab.)
ALDE	86D	NP B269 485	D.M. Alde *et al.*	(BELG, LAPP, SERP, CERN+)
CASON	83	PR D28 1586	N.M. Cason *et al.*	(NDAM, ANL)
ETKIN	82B	PR D25 1786	A. Etkin *et al.*	(BNL, CUNY, TUFTS, VAND)
WICKLUND	80	PRL 45 1469	A.B. Wicklund *et al.*	(ANL)
BECKER	79	NP B151 46	H. Becker *et al.*	(MPIM, CERN, ZEEM, CRAC)
POLYCHRO...	79	PR D19 1317	V.A. Polychronakos *et al.*	(NDAM, ANL)

FROGGATT	77	NP B129 89	C.D. Froggatt, J.L. Petersen	(GLAS, NORD)
ROSSELET	77	PR D15 574	L. Rosselet *et al.*	(GEVA, SACL)
GRAYER	74	NP B75 189	G. Grayer *et al.*	(CERN, MPIM)
HYAMS	73	NP B64 134	B.D. Hyams *et al.*	(CERN, MPIM)
OCHS	73	Thesis	W. Ochs	(MPIM, MUNI)
BEIER	72B	PRL 29 511	E.W. Beier *et al.*	(PENN)
BETTINI	66	NC 42A 695	A. Bettini *et al.*	(PADO, PISA)

OTHER RELATED PAPERS

AUBERT	07AX	PRL 99 161802	B. Aubert *et al.*	(BABAR Collab.)
AUBERT	07BB	PRL 99 221801	B. Aubert *et al.*	(BABAR Collab.)
BUGG	07	EPJ C52 55	D. Bugg	
KLEMPT	07	PRPL 454 1	E. Klempt, A. Zaitsev	
FARIBORZ	06	PR D74 054030	A.H. Fariborz	
AUBERT,B	05G	PR D72 052002	B. Aubert *et al.*	(BABAR Collab.)
AUBERT,B	05J	PR D72 052008	B. Aubert *et al.*	(BABAR 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	
GIACOSA	05	PR C71 025202	F. Giacosa *et al.*	
GIACOSA	05A	PL B622 277	F. Giacosa *et al.*	
RODRIGUEZ	05	PR D71 074008	S. Rodriguez, M. Napsuciale	
VIJANDE	05	PR D72 034025	J. Vijande, A. Valarce, F. Fernandez	
ZHAO	05	PR D72 074001	Q. Zhao	
ZHAO	05A	PL B631 22	Q. Zhao, B.-S. Zou, Z.-B. Ma	
LINK	04	PL B585 200	J.M. Link *et al.*	(FNAL FOCUS Collab.)
ANISOVICH	03B	PAN 66 741	V.V. Anisovich, V.A. Nikonov, A.V. Sarantsev	
		Translated from YAF 66 772.		
ANISOVICH	03D	PAN 66 928	V.V. Anisovich, A.V. Sarantsev	
		Translated from YAF 66 960.		
GARMASH	02	PR D65 092005	A. Garmash *et al.*	(BELLE Collab.)
JIN	02	PR D66 057505	H. Jin, X. Zhang	
KLEEFELD	02	PR D66 034007	F. Kleefeld *et al.*	
RUPP	02	PR D65 078501	G. Rupp, E. vanBeveren, M.D. Scadron	
SHAKIN	02	PR D65 078502	C.M. Shakin, H. Wang	
TESHIMA	02	JPG 28 1391	T. Teshima, I. Kitamura, N. Morisita	
VOLKOV	02	PAN 65 1657	M.K. Volkov, V.L. Yudichev	
		Translated from YAF 65 1701.		
KOPP	01	PR D63 092001	S. Kopp *et al.*	(CLEO Collab.)
LI	01B	EPJ C19 529	D.-M. Li, H. Yu, Q.-X. Shen	
SUROVTSEV	01	PR D63 054024	Y.S. Surovtsev, D. Krupa, M. Nagy	
AKHMETSHIN	00C	PL B476 33	R.R. Akhmetshin *et al.*	(Novosibirsk CMD-2 Collab.)
KAMINSKI	00	APP B31 895	R. Kaminski, L. Lesniak, K. Rybicki	
SADOVSKY	00	NP A655 131c	S.A. Sadovsky	
ISHIDA	99	PTP 101 661	M. Ishida	
MINKOWSKI	99	EPJ C9 283	P. Minkowski, W. Ochs	
VANBEVEREN	99	EPJ C10 469	E. van Beveren, G. Rupp	
ACHASOV	98D	PAN 61 224	N.N. Achasov, V.V. Gubin	
ACHASOV	98E	PR D58 054011	N.N. Achasov, G.N. Shestakov	
AMSLER	98	RMP 70 1293	C. Amsler	
ANISOVICH	98	PL B437 209	V.V. Anisovich *et al.*	
BLACK	98	PR D58 054012	D. Black *et al.*	
LOCHER	98	EPJ C4 317	M.P. Locher *et al.*	(PSI)
NARISON	98	NP B509 312	S. Narison	
ANISOVICH	97	PL B395 123	A.V. Anisovich, A.V. Sarantsev	(PNPI)
KAMINSKI	97	ZPHY C74 79	R. Kaminski, L. Lesniak, K. Rybicki	(CRAC)
PROKOSHKIN	97	SPD 42 117	Y.D. Prokoshkin *et al.*	(SERP)
		Translated from DANS 353 323.		
TORNQVIST	96	PRL 76 1575	N.A. Tornqvist, M. Roos	(HELS)
GASPERO	95	NP A588 861	M. Gaspero	(ROMA)
KLEMPT	95	PL B361 160	E. Klempt *et al.*	
ZOU	94B	PR D50 591	B.S. Zou, D.V. Bugg	(LOQM)
CLOSE	93A	PL B319 291	F.E. Close *et al.*	
CLOSE	93B	NP B389 513	F.E. Close, N. Isgur, S. Kumano	
MORGAN	93	PR D48 1185	D. Morgan, M.R. Pennington	(RAL, DURH)
LI	91	PR D43 2161	Z.P. Li *et al.*	(TENN)
BARNES	85	PL B165 434	T. Barnes	
BIZZARRI	69	NP B14 169	R. Bizzarri *et al.*	(CERN, CDEF)