$f_0(1370)$

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

See the review on "Spectroscopy of Light Meson Resonances" and a note on "Non-$q\overline{q}$ Candidates" in PDG 06, Journal of Physics **G33** 1 (2006).

f_0(1370) T-MATRIX POLE POSITION

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

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. • • •				
(1370 ± 40)−i(195 ± 20)	SARANTSEV	21	RVUE	$J/\psi(1S) \to \gamma\ (\pi\pi, K\overline{K}, \eta\eta, \omega\phi)$
(1280.6 ± 1.6 ± 47.4) − i(205.2 ± 1.7 ± 20.7)	[1] ALBRECHT	20	RVUE	0.9 $\overline{p}p \to \pi^0\pi^0\eta, \pi^0\eta\eta, \pi^0 K^+ K^-$
(1290 ± 50)−$i(170^{+20}_{-40})$	[2] ANISOVICH	09	RVUE	0.0 $\overline{p}p$, πN
(1373 ± 15)−i(137 ± 10)	[3] BARGIOTTI	03	OBLX	$\overline{p}p$
(1302 ± 17)−i(166 ± 18)	[4] BARBERIS	00C		450 $pp \to p_f 4\pi p_s$
(1312 ± 25 ± 10)−i(109 ± 22 ± 15)	BARBERIS	99D	OMEG	450 $pp \to K^+K^-, \pi^+\pi^-$
(1406 ± 19)−i(80 ± 6)	[5] KAMINSKI	99	RVUE	$\pi\pi \to \pi\pi$, $K\overline{K}$, $\sigma\sigma$
(1300 ± 20)−i(120 ± 20)	ANISOVICH	98B	RVUE	Compilation
(1290 ± 15)−i(145 ± 15)	BARBERIS	97B	OMEG	450 $pp \to pp2(\pi^+\pi^-)$
(1548 ± 40)−i(560 ± 40)	BERTIN	97C	OBLX	0.0 $\overline{p}p \to \pi^+\pi^-\pi^0$
(1380 ± 40)−i(180 ± 25)	ABELE	96B	CBAR	0.0 $\overline{p}p \to \pi^0 K^0_L K^0_L$
(1300 ± 15)−i(115 ± 8)	BUGG	96	RVUE	
(1330 ± 50)−i(150 ± 40)	[6] AMSLER	95B	CBAR	$\overline{p}p \to 3\pi^0$
(1360 ± 35)−i(150–300)	[6] AMSLER	95C	CBAR	$\overline{p}p \to \pi^0\eta\eta$
(1390 ± 30)−i(190 ± 40)	[7] AMSLER	95D	CBAR	$\overline{p}p \to 3\pi^0, \pi^0\eta\eta, \pi^0\pi^0\eta$
1346 − i249	[8,9] JANSSEN	95	RVUE	$\pi\pi \to \pi\pi$, $K\overline{K}$
1214 − i168	[9,10] TORNQVIST	95	RVUE	$\pi\pi \to \pi\pi$, $K\overline{K}$, $K\pi$, $\eta\pi$
1364 − i139	AMSLER	94D	CBAR	$\overline{p}p \to \pi^0\pi^0\eta$
(1365^{+20}_{-55})−i(134 ± 35)	ANISOVICH	94	CBAR	$\overline{p}p \to 3\pi^0, \pi^0\eta\eta$
(1340 ± 40)−$i(127^{+30}_{-20})$	[11] BUGG	94	RVUE	$\overline{p}p \to 3\pi^0, \eta\eta\pi^0, \eta\pi^0\pi^0$
(1430 ± 5)−i(73 ± 13)	[12] KAMINSKI	94	RVUE	$\pi\pi \to \pi\pi$, $K\overline{K}$
1420 − i220	[13] AU	87	RVUE	$\pi\pi \to \pi\pi$, $K\overline{K}$

[1] 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 ($\eta\eta'$).
[2] Another pole is found at (1510 ± 130) − $i\ (800^{+100}_{-150})$ MeV.
[3] Coupled channel analysis of $\pi^+\pi^-\pi^0$, $K^+K^-\pi^0$, and $K^\pm K^0_S \pi^\mp$.
[4] Average between $\pi^+\pi^-2\pi^0$ and $2(\pi^+\pi^-)$.
[5] T-matrix pole on sheet $---$.

[6] Supersedes ANISOVICH 94.
[7] 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 $f_0(500)$ and $f_0(1370)$ are two different poles.
[8] Analysis of data from FALVARD 88.
[9] The pole is on Sheet III. Demonstrates explicitly that $f_0(500)$ and $f_0(1370)$ are two different poles.
[10] 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.
[11] Reanalysis of ANISOVICH 94 data.
[12] T-matrix pole on sheet III.
[13] Analysis of data from OCHS 73,GRAYER 74, BECKER 79, and CASON 83.

$f_0(1370)$ BREIT-WIGNER MASS

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. • • •					
1400 ± 40		[1] AUBERT	09L	BABR	$B^\pm \rightarrow \pi^\pm\pi^\pm\pi^\mp$
$1470^{+\ 6+\ 72}_{-\ 7-255}$		[2] UEHARA	08A	BELL	$10.6\ e^+e^- \rightarrow e^+e^-\pi^0\pi^0$
1259 ± 55	2.6k	BONVICINI	07	CLEO	$D^+ \rightarrow \pi^-\pi^+\pi^+$
$1309\pm\ 1\pm\ 15$		[3] BUGG	07A	RVUE	$0.0\ p\overline{p} \rightarrow 3\pi^0$
1449 ± 13	4.3k	[4] GARMASH	06	BELL	$B^+ \rightarrow K^+\pi^+\pi^-$
1350 ± 50		ABLIKIM	05	BES2	$J/\psi \rightarrow \phi\pi^+\pi^-$
$1265\pm30^{+\ 20}_{-\ 35}$		ABLIKIM	05Q	BES2	$\psi(2S) \rightarrow \gamma\pi^+\pi^-K^+K^-$
$1434\pm18\pm\ 9$	848	AITALA	01A	E791	$D_s^+ \rightarrow \pi^-\pi^+\pi^+$
1308 ± 10		BARBERIS	99B	OMEG	$450\ pp \rightarrow p_s p_f \pi^+\pi^-$
1315 ± 50		BELLAZZINI	99	GAM4	$450\ pp \rightarrow pp\pi^0\pi^0$
1315 ± 30		ALDE	98	GAM4	$100\ \pi^-p \rightarrow \pi^0\pi^0n$
1280 ± 55		BERTIN	98	OBLX	$0.05–0.405\ \overline{n}p \rightarrow \pi^+\pi^+\pi^-$
1186		[5,6] TORNQVIST	95	RVUE	$\pi\pi \rightarrow \pi\pi$, $K\overline{K}$, $K\pi$, $\eta\pi$
1472 ± 12		ARMSTRONG	91	OMEG	$300\ pp \rightarrow pp\pi\pi$, $ppK\overline{K}$
1275 ± 20		BREAKSTONE	90	SFM	$62\ pp \rightarrow pp\pi^+\pi^-$
1420 ± 20		AKESSON	86	SPEC	$63\ pp \rightarrow pp\pi^+\pi^-$
1256		FROGGATT	77	RVUE	$\pi^+\pi^-$ channel

[1] Breit-Wigner mass.
[2] Breit-Wigner mass. May also be the $f_0(1500)$.
[3] Reanalysis of ABELE 96C data.
[4] Also observed by GARMASH 07 in $B^0 \rightarrow K_S^0\pi^+\pi^-$ decays. Supersedes GARMASH 05.
[5] 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.
[6] Also observed by ASNER 00 in $\tau^- \rightarrow \pi^-\pi^0\pi^0\nu_\tau$ decays

$K\overline{K}$ MODE

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1422\pm15\pm28$		[1] AAIJ	19H	LHCB	$pp \to D^{\pm} X$
$1360\pm31\pm28$	430	[2,3] DOBBS	15		$J/\psi \to \gamma K^+ K^-$
$1350\pm48\pm15$	168	[2,3] DOBBS	15		$\psi(2S) \to \gamma K^+ K^-$
$1440\pm\ 6$		VLADIMIRSK...	06	SPEC	$40\ \pi^- p \to K^0_S K^0_S n$
1391 ± 10		TIKHOMIROV	03	SPEC	$40.0\ \pi^- \text{C} \to K^0_S K^0_S K^0_L \text{X}$
1440 ± 50		BOLONKIN	88	SPEC	$40\ \pi^- p \to K^0_S K^0_S n$
$1463\pm\ 9$		ETKIN	82B	MPS	$23\ \pi^- p \to n 2K^0_S$
1425 ± 15		WICKLUND	80	SPEC	$6\ \pi N \to K^+ K^- N$
~ 1300		POLYCHRO...	79	STRC	$7\ \pi^- p \to n 2K^0_S$

[1] From the $D^{\pm} \to K^{\pm} K^+ K^-$ Dalitz plot fit with the isobar model A.
[2] Using CLEO-c data but not authored by the CLEO Collaboration.
[3] From a fit to a Breit-Wigner line shape with fixed $\Gamma = 346$ MeV.

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	$0.0\ \overline{p} d \to \pi^- 4\pi^0 p$
1374 ± 38		AMSLER	94	CBAR	$0.0\ \overline{p} p \to \pi^+ \pi^- 3\pi^0$
1345 ± 12		ADAMO	93	OBLX	$\overline{n} p \to 3\pi^+ 2\pi^-$
1386 ± 30		GASPERO	93	DBC	$0.0\ \overline{p} n \to 2\pi^+ 3\pi^-$
~ 1410	5751	[1] BETTINI	66	DBC	$0.0\ \overline{p} n \to 2\pi^+ 3\pi^-$

[1] $\rho\rho$ dominant.

$\eta\eta$ MODE

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1262^{+51+\ 82}_{-78-103}$	[1] UEHARA	10A	BELL	$10.6\ e^+ e^- \to e^+ e^- \eta\eta$
1430	AMSLER	92	CBAR	$0.0\ \overline{p} p \to \pi^0 \eta\eta$
1220 ± 40	ALDE	86D	GAM4	$100\ \pi^- p \to n 2\eta$

[1] Breit-Wigner mass. May also be the $f_0(1500)$.

COUPLED CHANNEL MODE

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1330.2^{+\ 5.9}_{-\ 6.5}\pm5.1$	[1] AAIJ	19H	LHCB	$pp \to D^{\pm} X$
$1306\ \ \pm20$	[2] ANISOVICH	03	RVUE	

[1] From the $D^{\pm} \to K^{\pm} K^+ K^-$ Dalitz plot fit with the Triple-M amplitude in the multi-meson model of AOUDE 18.
[2] 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.

$f_0(1370)$ 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. • • •					
300 ± 80		[1] AUBERT	09L	BABR	$B^\pm \to \pi^\pm\pi^\pm\pi^\mp$
$90^{+\ 2+\ 50}_{-\ 1-\ 22}$		[2] UEHARA	08A	BELL	$10.6\ e^+e^- \to e^+e^-\pi^0\pi^0$
298 ± 21	2.6k	BONVICINI	07	CLEO	$D^+ \to \pi^-\pi^+\pi^+$
126 ± 25	4286	[3] GARMASH	06	BELL	$B^+ \to K^+\pi^+\pi^-$
265 ± 40		ABLIKIM	05	BES2	$J/\psi \to \phi\pi^+\pi^-$
$350\pm100^{+105}_{-\ 60}$		ABLIKIM	05Q	BES2	$\psi(2S) \to \gamma\pi^+\pi^-K^+K^-$
$173\pm 32\pm 6$	848	AITALA	01A	E791	$D_s^+ \to \pi^-\pi^+\pi^+$
222 ± 20		BARBERIS	99B	OMEG	$450\ pp \to p_s p_f \pi^+\pi^-$
255 ± 60		BELLAZZINI	99	GAM4	$450\ pp \to pp\pi^0\pi^0$
190 ± 50		ALDE	98	GAM4	$100\ \pi^-p \to \pi^0\pi^0 n$
323 ± 13		BERTIN	98	OBLX	$0.05–0.405\ \overline{n}p \to \pi^+\pi^+\pi^-$
350		[4,5] TORNQVIST	95	RVUE	$\pi\pi \to \pi\pi,\ K\overline{K},\ K\pi,\ \eta\pi$
195 ± 33		ARMSTRONG	91	OMEG	$300\ pp \to pp\pi\pi,\ ppK\overline{K}$
285 ± 60		BREAKSTONE	90	SFM	$62\ pp \to pp\pi^+\pi^-$
460 ± 50		AKESSON	86	SPEC	$63\ pp \to pp\pi^+\pi^-$
~ 400		[6] FROGGATT	77	RVUE	$\pi^+\pi^-$ channel

[1] The systematic errors are not reported.
[2] Breit-Wigner width. May also be the $f_0(1500)$.
[3] Also observed by GARMASH 07 in $B^0 \to K_S^0\pi^+\pi^-$ decays. Supersedes GARMASH 05.
[4] 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.
[5] Also observed by ASNER 00 in $\tau^- \to \pi^-\pi^0\pi^0\nu_\tau$ decays
[6] 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. • • •				
$324\pm 38\pm 42$	[1] AAIJ	19H	LHCB	$pp \to D^\pm X$
121 ± 15	VLADIMIRSK...	06	SPEC	$40\ \pi^-p \to K_S^0K_S^0 n$
55 ± 26	TIKHOMIROV	03	SPEC	$40.0\ \pi^-\mathrm{C} \to K_S^0K_S^0K_L^0 X$
250 ± 80	BOLONKIN	88	SPEC	$40\ \pi^-p \to K_S^0K_S^0 n$
$118^{+138}_{-\ 16}$	ETKIN	82B	MPS	$23\ \pi^-p \to n2K_S^0$
160 ± 30	WICKLUND	80	SPEC	$6\ \pi N \to K^+K^-N$
~ 150	POLYCHRO...	79	STRC	$7\ \pi^-p \to n2K_S^0$

[1] From the $D^\pm \to K^\pm K^+K^-$ Dalitz plot fit with the isobar model A.

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 $\overline{p}n \to 2\pi^+ 3\pi^-$
$\sim$ 90	5751	[1] BETTINI	66	DBC	0.0 $\overline{p}n \to 2\pi^+ 3\pi^-$

[1] $\rho\rho$ dominant.

$\eta\eta$ MODE

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$484^{+246}_{-170}{}^{+246}_{-263}$	[1] UEHARA	10A	BELL	10.6 $e^+e^- \to e^+e^-\eta\eta$
250	AMSLER	92	CBAR	0.0 $\overline{p}p \to \pi^0\eta\eta$
$320\pm$ 40	ALDE	86D	GAM4	100 $\pi^- p \to n2\eta$

[1] Breit-Wigner width. May also be the $f_0(1500)$.

COUPLED CHANNEL MODE

VALUE (MeV)	DOCUMENT ID		TECN
• • • We do not use the following data for averages, fits, limits, etc. • • •			
147^{+30}_{-50}	[1] ANISOVICH	03	RVUE

[1] 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	$\rho\rho$	seen
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 $f_0(500)$ and MORGAN 90.

$\Gamma(e^+e^-)$ — Γ_{16}

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

$f_0(1370)$ $\Gamma(i)\Gamma(\gamma\gamma)/\Gamma(\text{total})$

$\Gamma(\eta\eta) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ — $\Gamma_{10}\Gamma_{15}/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$121^{+133}_{-53}{}^{+169}_{-106}$	[1] UEHARA	10A	BELL	10.6 $e^+e^- \to e^+e^-\eta\eta$

[1] Including interference with the $f_2'(1525)$ (parameters fixed to the values from the 2008 edition of this review, PDG 08) and $f_2(1270)$. May also be the $f_0(1500)$.

$f_0(1370)$ BRANCHING RATIOS

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.10	95	OCHS	13	RVUE	
0.26 ± 0.09		BUGG	96	RVUE	
<0.15		[1] AMSLER	94	CBAR	$\overline{p}p \to \pi^+\pi^-3\pi^0$
<0.06		GASPERO	93	DBC	0.0 $\overline{p}n \to$ hadrons

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

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

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	[1] GASPERO	93	DBC	0.0 $\overline{p}n \to$ hadrons

[1] 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	[1] GASPERO	93	DBC	$0.0\ \overline{p} n \rightarrow 2\pi^+ 3\pi^-$

[1] 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	[1] GASPERO	93	DBC	$0.0\ \overline{p} n \rightarrow$ hadrons

[1] 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	$0.0\ \overline{p} d \rightarrow 5\pi p$

$\Gamma(2(\pi\pi)_{S\text{-wave}})/\Gamma(\pi\pi)$ — 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	[1] ABELE	01	CBAR	$0.0\ \overline{p} d \rightarrow \pi^- 4\pi^0 p$

[1] 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	$0.0\ \overline{p} d \rightarrow 5\pi p$

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

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
large	BARBERIS	00C		$450\ p p \rightarrow p_f 4\pi p_s$
1.6 ± 0.2	AMSLER	94	CBAR	$\overline{p} p \rightarrow \pi^+ \pi^- 3\pi^0$
~ 0.65	GASPERO	93	DBC	$0.0\ \overline{p} n \rightarrow$ 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	$0.0\ \overline{p} d \rightarrow 5\pi p$

$\Gamma(a_1(1260)\pi)/\Gamma(4\pi)$ — 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. • • •				
$(28 \pm 11) \times 10^{-3}$	[1] ANISOVICH	02D	SPEC	Combined fit
$(4.7 \pm 2.0) \times 10^{-3}$	BARBERIS	00E		450 $p p \rightarrow p_f \eta\eta p_s$

[1] 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.

$\Gamma(K\overline{K})/\Gamma_{total}$ — 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	$J/\psi \rightarrow \phi\pi^+\pi^-$, $\phi K^+ K^-$
0.91 ± 0.20	[1] BARGIOTTI	03	OBLX	$\overline{p} p$
0.12 ± 0.06	[2] ANISOVICH	02D	SPEC	Combined fit
$0.46 \pm 0.15 \pm 0.11$	BARBERIS	99D	OMEG	450 $p p \rightarrow K^+ K^-$, $\pi^+\pi^-$

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

[2] 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.

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

$\Gamma(6\pi)/\Gamma_{total}$ — 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

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

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PDG	06	JP G33 1	W.-M. Yao *et al.*	(PDG Collab.)	
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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.)	
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ALDE	98	EPJ A3 361	D. Alde *et al.*	(GAM4 Collab.)	
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BARBERIS	97B	PL B413 217	D. Barberis *et al.*	(WA 102 Collab.)	
BERTIN	97C	PL B408 476	A. Bertin *et al.*	(OBELIX Collab.)	
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BUGG	96	NP B471 59	D.V. Bugg, A.V. Sarantsev, B.S. Zou	(LOQM, PNPI)	
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BOLONKIN	88	NP B309 426	B.V. Bolonkin *et al.*	(ITEP, SERP)	
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AKESSON	86	NP B264 154	T. Akesson *et al.*	(Axial Field Spec. Collab.)	
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BINON	84C	NC 80A 363	F.G. Binon *et al.*	(BELG, LAPP, SERP+)	
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GRAYER	74	NP B75 189	G. Grayer *et al.*	(CERN, MPIM)
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