

$f_0(1370)$

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

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

 $f_0(1370)$ T-MATRIX POLE $\sqrt{s}$

Note that $\Gamma = -2 \operatorname{Im}(\sqrt{s})$.

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
(1250–1440) $-i$ (60–300) OUR ESTIMATE			
$(1245 \pm 40) - i(300^{+30}_{-70})$	¹ PELAEZ	23	RVUE Compilation
$(1380^{+70}_{-60}) - i(220^{+80}_{-70})$	² PELAEZ	23	RVUE Compilation
$(1370 \pm 40) - i(195 \pm 20)$	SARANTSEV	21	RVUE $J/\psi(1S) \rightarrow \gamma(\pi\pi, K\bar{K}, \eta\eta, \omega\phi)$
$(1280.6 \pm 1.6 \pm 47.4) - i(205.2 \pm 1.7 \pm 20.7)$	³ ALBRECHT	20	RVUE $0.9 \bar{p}p \rightarrow \pi^0\pi^0\eta, \pi^0\eta\eta, \pi^0K^+K^-$
$(1290 \pm 50) - i(170^{+20}_{-40})$	⁴ ANISOVICH	09	RVUE $0.0 \bar{p}p, \pi N$
$(1373 \pm 15) - i(137 \pm 10)$	⁵ BARGIOTTI	03	OBLX $\bar{p}p$
$(1302 \pm 17) - i(166 \pm 18)$	⁶ BARBERIS	00C	$450 p p \rightarrow p_f 4\pi p_s$
$(1312 \pm 25 \pm 10) - i(109 \pm 22 \pm 15)$	BARBERIS	99D	OMEG $450 p p \rightarrow K^+K^-, \pi^+\pi^-$
$(1406 \pm 19) - i(80 \pm 6)$	⁷ KAMINSKI	99	RVUE $\pi\pi \rightarrow \pi\pi, K\bar{K}, \sigma\sigma$
$(1300 \pm 20) - i(120 \pm 20)$	ANISOVICH	98B	RVUE Compilation
$(1290 \pm 15) - i(145 \pm 15)$	BARBERIS	97B	OMEG $450 p p \rightarrow p p 2(\pi^+\pi^-)$
$(1548 \pm 40) - i(560 \pm 40)$	BERTIN	97C	OBLX $0.0 \bar{p}p \rightarrow \pi^+\pi^-\pi^0$
$(1380 \pm 40) - i(180 \pm 25)$	ABELE	96B	CBAR $0.0 \bar{p}p \rightarrow \pi^0K_L^0K_L^0$
$(1300 \pm 15) - i(115 \pm 8)$	BUGG	96	RVUE
$(1330 \pm 50) - i(150 \pm 40)$	⁸ AMSLER	95B	CBAR $\bar{p}p \rightarrow 3\pi^0$
$(1360 \pm 35) - i(150-300)$	⁸ AMSLER	95C	CBAR $\bar{p}p \rightarrow \pi^0\eta\eta$
$(1390 \pm 30) - i(190 \pm 40)$	⁹ AMSLER	95D	CBAR $\bar{p}p \rightarrow 3\pi^0, \pi^0\eta\eta, \pi^0\pi^0\eta$
$1346 - i249$	^{10,11} JANSSEN	95	RVUE $\pi\pi \rightarrow \pi\pi, K\bar{K}$
$1214 - i168$	^{11,12} TORNQVIST	95	RVUE $\pi\pi \rightarrow \pi\pi, K\bar{K}, K\pi, \eta\pi$
$1364 - i139$	AMSLER	94D	CBAR $\bar{p}p \rightarrow \pi^0\pi^0\eta$
$(1365^{+20}_{-55}) - i(134 \pm 35)$	ANISOVICH	94	CBAR $\bar{p}p \rightarrow 3\pi^0, \pi^0\eta\eta$
$(1340 \pm 40) - i(127^{+30}_{-20})$	¹³ BUGG	94	RVUE $\bar{p}p \rightarrow 3\pi^0, \eta\eta\pi^0, \eta\pi^0\pi^0$
$(1430 \pm 5) - i(73 \pm 13)$	¹⁴ KAMINSKI	94	RVUE $\pi\pi \rightarrow \pi\pi, K\bar{K}$
$1420 - i220$	¹⁵ AU	87	RVUE $\pi\pi \rightarrow \pi\pi, K\bar{K}$

¹ From forward dispersion relation applied to $\pi\pi$ scattering data.

² From partial-wave dispersion relation applied to $\pi\pi \rightarrow \bar{K}K$ data.

³ T-matrix pole, 5 poles, 5 channels, including scattering data from HYAMS 75 ($\pi\pi$), LONGACRE 86 ($K\bar{K}$), BINON 83 ($\eta\eta$), and BINON 84C ($\eta\eta'$).

⁴ Another pole is found at $(1510 \pm 130) - i(800^{+100}_{-150})$ MeV.

⁵ Coupled channel analysis of $\pi^+ \pi^- \pi^0$, $K^+ K^- \pi^0$, and $K^\pm K_S^0 \pi^\mp$.

⁶ Average between $\pi^+ \pi^- 2\pi^0$ and $2(\pi^+ \pi^-)$.

⁷ T-matrix pole on sheet $---$.

⁸ Supersedes ANISOVICH 94.

⁹ Coupled-channel analysis of $\bar{p}p \rightarrow 3\pi^0$, $\pi^0 \eta \eta$, and $\pi^0 \pi^0 \eta$ on sheet IV. Demonstrates explicitly that $f_0(500)$ and $f_0(1370)$ are two different poles.

¹⁰ Analysis of data from FALVARD 88.

¹¹ The pole is on Sheet III. Demonstrates explicitly that $f_0(500)$ and $f_0(1370)$ are two different poles.

¹² 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.

¹³ Reanalysis of ANISOVICH 94 data.

¹⁴ T-matrix pole on sheet III.

¹⁵ 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 _{−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 ± 1 ± 15		³ BUGG	07A	RVUE $0.0 p\bar{p} \rightarrow 3\pi^0$
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 ± 30 ⁺ _− 20 _{−35}		ABLIKIM	05Q	BES2 $\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$
1434 ± 18 ± 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 $\pi^- p \rightarrow \pi^0 \pi^0 n$
1280 ± 55		BERTIN	98	OBLX $0.05-0.405 \bar{n}p \rightarrow \pi^+ \pi^+ \pi^-$
1186		^{5,6} TORNQVIST	95	RVUE $\pi\pi \rightarrow \pi\pi, K\bar{K}, K\pi, \eta\pi$
1472 ± 12		ARMSTRONG	91	OMEG 300 $pp \rightarrow pp\pi\pi, ppK\bar{K}$
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

$K\bar{K}$ MODE

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1422 \pm 15 \pm 28$		¹ AAIJ	19H LHCb	$pp \rightarrow D^\pm X$
$1360 \pm 31 \pm 28$	430	^{2,3} DOBBS	15	$J/\psi \rightarrow \gamma K^+ K^-$
$1350 \pm 48 \pm 15$	168	^{2,3} DOBBS	15	$\psi(2S) \rightarrow \gamma K^+ K^-$
1440 ± 6		VLADIMIRSK...	06 SPEC	$40 \pi^- p \rightarrow K_S^0 K_S^0 n$
1391 ± 10		TIKHOMIROV	03 SPEC	$40.0 \pi^- C \rightarrow K_S^0 K_S^0 K_L^0 X$
1440 ± 50		BOLONKIN	88 SPEC	$40 \pi^- p \rightarrow K_S^0 K_S^0 n$
1463 ± 9		ETKIN	82B MPS	$23 \pi^- p \rightarrow n 2 K_S^0$
1425 ± 15		WICKLUND	80 SPEC	$6 \pi N \rightarrow K^+ K^- N$
~ 1300		POLYCHRO...	79 STRC	$7 \pi^- p \rightarrow n 2 K_S^0$

¹ From the $D^\pm \rightarrow K^\pm K^+ K^-$ 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	$0.0 \bar{p} d \rightarrow \pi^- 4\pi^0 p$
1374 ± 38		AMSLER	94 CBAR	$0.0 \bar{p} p \rightarrow \pi^+ \pi^- 3\pi^0$
1345 ± 12		ADAMO	93 OBLX	$\bar{n} p \rightarrow 3\pi^+ 2\pi^-$
1386 ± 30		GASPERO	93 DBC	$0.0 \bar{p} n \rightarrow 2\pi^+ 3\pi^-$
~ 1410	5751	¹ BETTINI	66 DBC	$0.0 \bar{p} n \rightarrow 2\pi^+ 3\pi^-$

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	$10.6 e^+ e^- \rightarrow e^+ e^- \eta\eta$
1430	AMSLER	92 CBAR	$0.0 \bar{p} p \rightarrow \pi^0 \eta\eta$
1220 ± 40	ALDE	86D GAM4	$100 \pi^- p \rightarrow n 2\eta$

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. • • •			
$1330.2^{+5.9}_{-6.5} \pm 5.1$	¹ AAIJ	19H LHCb	$pp \rightarrow D^\pm X$
1306 ± 20	² ANISOVICH	03 RVUE	
¹ From the $D^\pm \rightarrow K^\pm K^+ K^-$ Dalitz plot fit with the Triple-M amplitude in the multi-meson model of AOUE 18.			
² K-matrix pole from combined analysis of $\pi^- p \rightarrow \pi^0 \pi^0 n$, $\pi^- p \rightarrow K \bar{K} n$, $\pi^+ \pi^- \rightarrow \pi^+ \pi^-$, $\bar{p} p \rightarrow \pi^0 \pi^0 \pi^0$, $\pi^0 \eta\eta$, $\pi^0 \pi^0 \eta$, $\pi^+ \pi^- \pi^0$, $K^+ K^- \pi^0$, $K_S^0 K_S^0 \pi^0$, $K^+ K_S^0 \pi^-$ at rest, $\bar{p} n \rightarrow \pi^- \pi^- \pi^+$, $K_S^0 K^- \pi^0$, $K_S^0 K_S^0 \pi^-$ at rest.			

$f_0(1370)$ BREIT-WIGNER WIDTHVALUE (MeV)DOCUMENT ID**200 to 500 OUR ESTIMATE** **$\pi\pi$ MODE**

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
• • • We do not use the following data for averages, fits, limits, etc. • • •				
300 ± 80		¹ AUBERT	09L BABR	$B^\pm \rightarrow \pi^\pm \pi^\pm \pi^\mp$
$90^{+2}_{-1} \quad 2^{+50}_{-22}$		² UEHARA	08A BELL	$10.6 e^+ e^- \rightarrow e^+ e^- \pi^0 \pi^0$
298 ± 21	2.6k	BONVICINI	07 CLEO	$D^+ \rightarrow \pi^- \pi^+ \pi^+$
126 ± 25	4286	³ GARMASH	06 BELL	$B^+ \rightarrow K^+ \pi^+ \pi^-$
265 ± 40		ABLIKIM	05 BES2	$J/\psi \rightarrow \phi \pi^+ \pi^-$
$350 \pm 100^{+105}_{-60}$		ABLIKIM	05Q BES2	$\psi(2S) \rightarrow \gamma \pi^+ \pi^- K^+ K^-$
$173 \pm 32 \pm 6$	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	$0.05-0.405 \bar{n} p \rightarrow \pi^+ \pi^+ \pi^-$
350		^{4,5} TORNQVIST	95 RVUE	$\pi\pi \rightarrow \pi\pi, K\bar{K}, K\pi, \eta\pi$
195 ± 33		ARMSTRONG	91 OMEG	$300 pp \rightarrow pp \pi\pi, pp K\bar{K}$
285 ± 60		BREAKSTONE	90 SFM	$62 pp \rightarrow pp \pi^+ \pi^-$
460 ± 50		AKESSON	86 SPEC	$63 pp \rightarrow pp \pi^+ \pi^-$
~ 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 $B^0 \rightarrow K_S^0 \pi^+ \pi^-$ 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 $\tau^- \rightarrow \pi^- \pi^0 \pi^0 \nu_\tau$ decays⁶ Width defined as distance between 45 and 135° phase shift. **$K\bar{K}$ MODE**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$324 \pm 38 \pm 42$	¹ AAIJ	19H LHCb	$pp \rightarrow D^\pm X$
121 ± 15	VLADIMIRSK...	06 SPEC	$40 \pi^- p \rightarrow K_S^0 K_S^0 n$
55 ± 26	TIKHOMIROV	03 SPEC	$40.0 \pi^- C \rightarrow K_S^0 K_S^0 K_L^0 X$
250 ± 80	BOLONKIN	88 SPEC	$40 \pi^- p \rightarrow K_S^0 K_S^0 n$
118^{+138}_{-16}	ETKIN	82B MPS	$23 \pi^- p \rightarrow n 2 K_S^0$
160 ± 30	WICKLUND	80 SPEC	$6 \pi N \rightarrow K^+ K^- N$
~ 150	POLYCHRO...	79 STRC	$7 \pi^- p \rightarrow n 2 K_S^0$

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

4π MODE 2(ππ)_S+ρρ

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 $\bar{p}d \rightarrow \pi^- 4\pi^0 p$
375±61		AMSLER	94	CBAR 0.0 $\bar{p}p \rightarrow \pi^+ \pi^- 3\pi^0$
398±26		ADAMO	93	OBLX $\bar{n}p \rightarrow 3\pi^+ 2\pi^-$
310±50		GASPERO	93	DBC 0.0 $\bar{p}n \rightarrow 2\pi^+ 3\pi^-$
~ 90	5751	¹ BETTINI	66	DBC 0.0 $\bar{p}n \rightarrow 2\pi^+ 3\pi^-$
¹ ρρ dominant.				

ηη MODE

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •			
484 ⁺²⁴⁶⁺²⁴⁶ ₋₁₇₀₋₂₆₃	¹ UEHARA	10A	BELL 10.6 $e^+e^- \rightarrow e^+e^- \eta\eta$
250	AMSLER	92	CBAR 0.0 $\bar{p}p \rightarrow \pi^0 \eta\eta$
320± 40	ALDE	86D	GAM4 100 $\pi^- p \rightarrow n 2\eta$
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 $\pi^- p \rightarrow \pi^0 \pi^0 n$, $\pi^- p \rightarrow K \bar{K} n$, $\pi^+ \pi^- \rightarrow \pi^+ \pi^-$, $\bar{p}p \rightarrow \pi^0 \pi^0 \pi^0$, $\pi^0 \eta\eta$, $\pi^0 \pi^0 \eta$, $\pi^+ \pi^- \pi^0$, $K^+ K^- \pi^0$, $K_S^0 K_S^0 \pi^0$, $K^+ K_S^0 \pi^-$ at rest, $\bar{p}n \rightarrow \pi^- \pi^- \pi^+$, $K_S^0 K^- \pi^0$, $K_S^0 K_S^0 \pi^-$ at rest.		

f₀(1370) DECAY MODES

Mode	Fraction (Γ _{<i>i</i>} /Γ)
Γ ₁ π π	seen
Γ ₂ 4π	seen
Γ ₃ 4π ⁰	seen
Γ ₄ 2π ⁺ 2π ⁻	seen
Γ ₅ π ⁺ π ⁻ 2π ⁰	seen
Γ ₆ ρ ρ	seen
Γ ₇ 2(ππ) _S -wave	seen
Γ ₈ π(1300)π	seen
Γ ₉ a ₁ (1260)π	seen
Γ ₁₀ η η	seen
Γ ₁₁ K $\bar{K}$	seen
Γ ₁₂ K $\bar{K} n \pi$	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}
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VALUE (eV)	CL%	DOCUMENT ID	TECN	COMMENT
<20	90	VOROBYEV 88	ND	$e^+e^- \rightarrow \pi^0\pi^0$

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

$\Gamma(\eta\eta) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$	$\Gamma_{10}\Gamma_{15}/\Gamma$
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VALUE (eV)	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$121^{+133+169}_{-53-106}$	¹ UEHARA 10A	BELL	$10.6 e^+e^- \rightarrow e^+e^- \eta\eta$
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
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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	$\bar{p}p \rightarrow \pi^+\pi^-3\pi^0$
<0.06		GASPERO 93	DBC	$0.0 \bar{p}n \rightarrow \text{hadrons}$
¹ Using AMSLER 95B ($3\pi^0$).				

$\Gamma(4\pi)/\Gamma_{\text{total}}$	$\Gamma_2/\Gamma = (\Gamma_3+\Gamma_4+\Gamma_5)/\Gamma$
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VALUE	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •			
>0.72	GASPERO 93	DBC	$0.0 \bar{p}n \rightarrow \text{hadrons}$

$\Gamma(4\pi^0)/\Gamma(4\pi)$	Γ_3/Γ_2
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VALUE	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •			
seen	ABELE 96	CBAR	$0.0 \bar{p}p \rightarrow 5\pi^0$
0.068 ± 0.005	¹ GASPERO 93	DBC	$0.0 \bar{p}n \rightarrow \text{hadrons}$
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 $\bar{p}n \rightarrow 2\pi^+ 3\pi^-$
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 $\bar{p}n \rightarrow$ 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 $\bar{p}d \rightarrow 5\pi p$

 $\Gamma(2(\pi\pi)_{S\text{-wave}})/\Gamma(\pi\pi)$ 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 $\bar{p}d \rightarrow \pi^- 4\pi^0 p$
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 $\bar{p}d \rightarrow 5\pi p$

 $\Gamma(\rho\rho)/\Gamma(2(\pi\pi)_{S\text{-wave}})$ 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 $pp \rightarrow p_f 4\pi p_s$
1.6 ± 0.2	AMSLER	94	CBAR $\bar{p}p \rightarrow \pi^+\pi^- 3\pi^0$
~ 0.65	GASPERO	93	DBC 0.0 $\bar{p}n \rightarrow$ 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 $\bar{p}d \rightarrow 5\pi p$

 $\Gamma(a_1(1260)\pi)/\Gamma(4\pi)$ 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 $\bar{p}d \rightarrow 5\pi p$

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

VALUE	DOCUMENT ID	TECN	COMMENT
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• • • 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 $p\bar{p} \rightarrow p_f \eta \eta p_S$

¹From a combined K-matrix analysis of Crystal Barrel ($0. \ p\bar{p} \rightarrow \pi^0 \pi^0 \pi^0, \pi^0 \eta \eta, \pi^0 \pi^0 \eta$), GAMS ($\pi p \rightarrow \pi^0 \pi^0 n, \eta \eta n, \eta \eta' n$), and BNL ($\pi p \rightarrow K \bar{K} n$) data.

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

VALUE	DOCUMENT ID	TECN
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• • • We do not use the following data for averages, fits, limits, etc. • • •

0.35 ± 0.13	BUGG	96 RVUE
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 $\Gamma(K\bar{K})/\Gamma(\pi\pi)$ Γ_{11}/Γ_1

VALUE	DOCUMENT ID	TECN	COMMENT
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• • • 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 $\bar{p}p$
0.12 ± 0.06	² ANISOVICH	02D	SPEC Combined fit
$0.46 \pm 0.15 \pm 0.11$	BARBERIS	99D	OMEG 450 $p\bar{p} \rightarrow K^+ K^-, \pi^+ \pi^-$

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

²From a combined K-matrix analysis of Crystal Barrel ($0. \ p\bar{p} \rightarrow \pi^0 \pi^0 \pi^0, \pi^0 \eta \eta, \pi^0 \pi^0 \eta$), GAMS ($\pi p \rightarrow \pi^0 \pi^0 n, \eta \eta n, \eta \eta' n$), and BNL ($\pi p \rightarrow K \bar{K} n$) data.

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

VALUE	DOCUMENT ID	TECN	COMMENT
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• • • We do not use the following data for averages, fits, limits, etc. • • •

< 0.03	GASPERO	93	DBC $0.0 \ \bar{p}n \rightarrow \text{hadrons}$
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 $\Gamma(6\pi)/\Gamma_{\text{total}}$ Γ_{13}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
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• • • We do not use the following data for averages, fits, limits, etc. • • •

< 0.22	GASPERO	93	DBC $0.0 \ \bar{p}n \rightarrow \text{hadrons}$
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 $\Gamma(\omega\omega)/\Gamma_{\text{total}}$ Γ_{14}/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
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• • • We do not use the following data for averages, fits, limits, etc. • • •

< 0.13	GASPERO	93	DBC $0.0 \ \bar{p}n \rightarrow \text{hadrons}$
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AITALA	01A	PRL 86 765	E.M. Aitala <i>et al.</i>	(FNAL E791 Collab.)
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