$f_0(980)$

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

See also the minireview on scalar mesons under $f_0(600)$. (See the index for the page number.)

$f_0(980)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
980 ±10 OUR ESTIMATE					
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$976.8 \pm 0.3^{+10.1}_{-0.6}$	64k	[1] AMBROSINO	07	KLOE	$1.02\ e^+e^- \to \pi^0\pi^0\gamma$
$984.7 \pm 0.4^{+2.4}_{-3.7}$	64k	[2] AMBROSINO	07	KLOE	$1.02\ e^+e^- \to \pi^0\pi^0\gamma$
$985.6^{+1.2}_{-1.5}{}^{+1.1}_{-1.6}$		[3] MORI	07	BELL	$10.6\ e^+e^- \to e^+e^-\pi^+\pi^-$
$983.0 \pm 0.6^{+4.0}_{-3.0}$		[4] AMBROSINO	06B	KLOE	$1.02\ e^+e^- \to \pi^+\pi^-\gamma$
$977.3 \pm 0.9^{+3.7}_{-4.3}$		[5] AMBROSINO	06B	KLOE	$1.02\ e^+e^- \to \pi^+\pi^-\gamma$
950 ± 9	4286	[6] GARMASH	06	BELL	$B^+ \to K^+\pi^+\pi^-$
965 ± 10		ABLIKIM	05	BES2	$J/\psi \to \phi\pi^+\pi^-, \phi K^+K^-$
1031 ± 8		[7] ANISOVICH	03	RVUE	
1037 ± 31		TIKHOMIROV	03	SPEC	$40.0\ \pi^- C \to K^0_S K^0_S K^0_L X$
973 ± 1	2438	[8] ALOISIO	02D	KLOE	$e^+e^- \to \pi^0\pi^0\gamma$
$977 \pm 3 \pm 2$	848	[9] AITALA	01A	E791	$D^+_s \to \pi^-\pi^+\pi^+$
969.8 ± 4.5	419	[10] ACHASOV	00H	SND	$e^+e^- \to \pi^0\pi^0\gamma$
985^{+16}_{-12}	419	[11,12] ACHASOV	00H	SND	$e^+e^- \to \pi^0\pi^0\gamma$
$976 \pm 5 \pm 6$		[13] AKHMETSHIN	99B	CMD2	$e^+e^- \to \pi^+\pi^-\gamma$
$977 \pm 3 \pm 6$	268	[13] AKHMETSHIN	99C	CMD2	$e^+e^- \to \pi^0\pi^0\gamma$
$975 \pm 4 \pm 6$		[14] AKHMETSHIN	99C	CMD2	$e^+e^- \to \pi^0\pi^0\gamma$
$975 \pm 4 \pm 6$		[15] AKHMETSHIN	99C	CMD2	$e^+e^- \to \pi^+\pi^-\gamma, \pi^0\pi^0\gamma$
985 ± 10		BARBERIS	99	OMEG	$450\ pp \to p_s p_f K^+K^-$
982 ± 3		BARBERIS	99B	OMEG	$450\ pp \to p_s p_f \pi^+\pi^-$
982 ± 3		BARBERIS	99C	OMEG	$450\ pp \to p_s p_f \pi^0\pi^0$
$987 \pm 6 \pm 6$		[16] BARBERIS	99D	OMEG	$450\ pp \to K^+K^-, \pi^+\pi^-$
989 ± 15		BELLAZZINI	99	GAM4	$450\ pp \to pp\pi^0\pi^0$
991 ± 3		[17] KAMINSKI	99	RVUE	$\pi\pi \to \pi\pi, K\overline{K}, \sigma\sigma$
~ 980		[17] OLLER	99	RVUE	$\pi\pi \to \pi\pi, K\overline{K}$
~ 993.5		OLLER	99B	RVUE	$\pi\pi \to \pi\pi, K\overline{K}$
~ 987		[17] OLLER	99C	RVUE	$\pi\pi \to \pi\pi, K\overline{K}, \eta\eta$
957 ± 6		[18] ACKERSTAFF	98Q	OPAL	$Z \to f_0 X$
960 ± 10		ALDE	98	GAM4	
1015 ± 15		[17] ANISOVICH	98B	RVUE	Compilation

1008		[19] LOCHER	98	RVUE	$\pi\pi \rightarrow \pi\pi$, $K\overline{K}$
955 ± 10		[18] ALDE	97	GAM2	450 $pp \rightarrow pp\pi^0\pi^0$
994 $\pm$ 9		[20] BERTIN	97C	OBLX	0.0 $\overline{p}p \rightarrow \pi^+\pi^-\pi^0$
993.2 $\pm$ 6.5 $\pm$ 6.9		[21] ISHIDA	96	RVUE	$\pi\pi \rightarrow \pi\pi$, $K\overline{K}$
1006		TORNQVIST	96	RVUE	$\pi\pi \rightarrow \pi\pi$, $K\overline{K}$, $K\pi$, $\eta\pi$
997 $\pm$ 5	3k	[22] ALDE	95B	GAM2	38 $\pi^- p \rightarrow \pi^0\pi^0 n$
960 ± 10	10k	[23] ALDE	95B	GAM2	38 $\pi^- p \rightarrow \pi^0\pi^0 n$
994 $\pm$ 5		AMSLER	95B	CBAR	0.0 $\overline{p}p \rightarrow 3\pi^0$
$\sim$ 996		[24] AMSLER	95D	CBAR	0.0 $\overline{p}p \rightarrow \pi^0\pi^0\pi^0$, $\pi^0\eta\eta$, $\pi^0\pi^0\eta$
987 $\pm$ 6		[25] ANISOVICH	95	RVUE	
1015		JANSSEN	95	RVUE	$\pi\pi \rightarrow \pi\pi$, $K\overline{K}$
983		[26] BUGG	94	RVUE	$\overline{p}p \rightarrow \eta 2\pi^0$
973 $\pm$ 2		[27] KAMINSKI	94	RVUE	$\pi\pi \rightarrow \pi\pi$, $K\overline{K}$
988		[28] ZOU	94B	RVUE	
988 ± 10		[29] MORGAN	93	RVUE	$\pi\pi(K\overline{K}) \rightarrow \pi\pi(K\overline{K})$, $J/\psi \rightarrow \phi\pi\pi(K\overline{K})$, $D_s \rightarrow \pi(\pi\pi)$
971.1 $\pm$ 4.0		[18] AGUILAR-...	91	EHS	400 pp
979 $\pm$ 4		[30] ARMSTRONG	91	OMEG	300 $pp \rightarrow pp\pi\pi$, $ppK\overline{K}$
956 ± 12		BREAKSTONE	90	SFM	$pp \rightarrow pp\pi^+\pi^-$
959.4 $\pm$ 6.5		[18] AUGUSTIN	89	DM2	$J/\psi \rightarrow \omega\pi^+\pi^-$
978 $\pm$ 9		[18] ABACHI	86B	HRS	$e^+e^- \rightarrow \pi^+\pi^- X$
$985.0^{+\ 9.0}_{-39.0}$		ETKIN	82B	MPS	23 $\pi^- p \rightarrow n 2K^0_S$
974 $\pm$ 4		[30] GIDAL	81	MRK2	$J/\psi \rightarrow \pi^+\pi^- X$
975		[31] ACHASOV	80	RVUE	
986 ± 10		[30] AGUILAR-...	78	HBC	0.7 $\overline{p}p \rightarrow K^0_S K^0_S$
969 $\pm$ 5		[30] LEEPER	77	ASPK	2–2.4 $\pi^- p \rightarrow \pi^+\pi^- n$, $K^+K^- n$
987 $\pm$ 7		[30] BINNIE	73	CNTR	$\pi^- p \rightarrow n$MM
1012 $\pm$ 6		[32] GRAYER	73	ASPK	17 $\pi^- p \rightarrow \pi^+\pi^- n$
1007 ± 20		[32] HYAMS	73	ASPK	17 $\pi^- p \rightarrow \pi^+\pi^- n$
997 $\pm$ 6		[32] PROTOPOP...	73	HBC	7 $\pi^+ p \rightarrow \pi^+ p\pi^+\pi^-$

[1] In the kaon-loop fit.

[2] In the no-structure fit.

[3] Breit-Wigner mass. Using finite width corrections according to FLATTE 76 and ACHASOV 05, and the ratio $g^2_{f_0 KK}/g^2_{f_0\pi\pi}$ from ABLIKIM 05.

[4] In the kaon-loop fit following formalism of ACHASOV 89.

[5] In the no-structure fit assuming a direct coupling of ϕ to $f_0\gamma$.

[6] FLATTE 76 parameterization. Supersedes GARMASH 05.

[7] 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.

[8] From the negative interference with the $f_0(600)$ meson of AITALA 01B using the ACHASOV 89 parameterization for the $f_0(980)$, a Breit-Wigner for the $f_0(600)$, and ACHASOV 01F for the $\rho\pi$ contribution.

[9] Coupled-channel Breit-Wigner, couplings g_π=0.09$\pm$0.01$\pm$0.01, g_K=0.02$\pm$0.04$\pm$0.03.

[10] Supersedes ACHASOV 98I. Using the model of ACHASOV 89.
[11] Supersedes ACHASOV 98I.
[12] In the "narrow resonance" approximation.
[13] Assuming $\Gamma(f_0)$= 40 MeV.
[14] From a narrow pole fit taking into account $f_0(980)$ and $f_0(1200)$ intermediate mechanisms.
[15] From the combined fit of the photon spectra in the reactions $e^+e^- \rightarrow \pi^+\pi^-\gamma$, $\pi^0\pi^0\gamma$.
[16] Supersedes BARBERIS 99 and BARBERIS 99B
[17] T-matrix pole.
[18] From invariant mass fit.
[19] On sheet II in a 2 pole solution. The other pole is found on sheet III at ($1039-93i$) MeV.
[20] On sheet II in a 2 pole solution. The other pole is found on sheet III at (963-29i) MeV.
[21] Reanalysis of data from HYAMS 73, GRAYER 74, SRINIVASAN 75, and ROSSELET 77 using the interfering amplitude method.
[22] At high $|t|$.
[23] At low $|t|$.
[24] On sheet II in a 4-pole solution, the other poles are found on sheet III at ($953-55i$) MeV and on sheet IV at ($938-35i$) MeV.
[25] Combined fit of ALDE 95B, ANISOVICH 94, AMSLER 94D.
[26] On sheet II in a 2 pole solution. The other pole is found on sheet III at ($996-103i$) MeV.
[27] From sheet II pole position.
[28] On sheet II in a 2 pole solution. The other pole is found on sheet III at ($797-185i$) MeV and can be interpreted as a shadow pole.
[29] On sheet II in a 2 pole solution. The other pole is found on sheet III at ($978-28i$) MeV.
[30] From coupled channel analysis.
[31] Coupled channel analysis with finite width corrections.
[32] Included in AGUILAR-BENITEZ 78 fit.

$f_0(980)$ WIDTH

Width determination very model dependent. Peak width in $\pi\pi$ is about 50 MeV, but decay width can be much larger.

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
40 to 100 OUR ESTIMATE				
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$51.3^{+20.8+13.2}_{-17.7-3.8}$		[33] MORI 07	BELL	10.6 $e^+e^- \rightarrow e^+e^-\pi^+\pi^-$
$61 \pm 9^{+14}_{-8}$	2584	[34] GARMASH 05	BELL	$B^+ \rightarrow K^+\pi^+\pi^-$
64 ± 16		[35] ANISOVICH 03	RVUE	
121 ± 23		TIKHOMIROV 03	SPEC	40.0 $\pi^- C \rightarrow K^0_S K^0_S K^0_L X$
~ 70		[36] BRAMON 02	RVUE	1.02 $e^+e^- \rightarrow \pi^0\pi^0\gamma$
$44 \pm 2 \pm 2$	848	[37] AITALA 01A	E791	$D^+_s \rightarrow \pi^-\pi^+\pi^+$
201 ± 28	419	[38] ACHASOV 00H	SND	$e^+e^- \rightarrow \pi^0\pi^0\gamma$
122 ± 13	419	[39,40] ACHASOV 00H	SND	$e^+e^- \rightarrow \pi^0\pi^0\gamma$
56 ± 20		[41] AKHMETSHIN 99C	CMD2	$e^+e^- \rightarrow \pi^0\pi^0\gamma$
65 ± 20		BARBERIS 99	OMEG	450 $pp \rightarrow p_s p_f K^+K^-$
80 ± 10		BARBERIS 99B	OMEG	450 $pp \rightarrow p_s p_f \pi^+\pi^-$

80 ± 10		BARBERIS	99C	OMEG	450 $pp \to p_s p_f \pi^0 \pi^0$
48 ± 12 ± 8		[42] BARBERIS	99D	OMEG	450 $pp \to K^+ K^-, \pi^+ \pi^-$
65 ± 25		BELLAZZINI	99	GAM4	450 $pp \to pp\pi^0\pi^0$
71 ± 14		[43] KAMINSKI	99	RVUE	$\pi\pi \to \pi\pi, K\overline{K}, \sigma\sigma$
∼ 28		[43] OLLER	99	RVUE	$\pi\pi \to \pi\pi, K\overline{K}$
∼ 25		OLLER	99B	RVUE	$\pi\pi \to \pi\pi, K\overline{K}$
∼ 14		[43] OLLER	99C	RVUE	$\pi\pi \to \pi\pi, K\overline{K}, \eta\eta$
70 ± 20		ALDE	98	GAM4	
86 ± 16		[43] ANISOVICH	98B	RVUE	Compilation
54		[44] LOCHER	98	RVUE	$\pi\pi \to \pi\pi$, $K\overline{K}$
69 ± 15		[45] ALDE	97	GAM2	450 $pp \to pp\pi^0\pi^0$
38 ± 20		[46] BERTIN	97C	OBLX	0.0 $\overline{p}p \to \pi^+\pi^-\pi^0$
∼ 100		[47] ISHIDA	96	RVUE	$\pi\pi \to \pi\pi, K\overline{K}$
34		TORNQVIST	96	RVUE	$\pi\pi \to \pi\pi, K\overline{K}, K\pi, \eta\pi$
48 ± 10	3k	[48] ALDE	95B	GAM2	38 $\pi^- p \to \pi^0\pi^0 n$
95 ± 20	10k	[49] ALDE	95B	GAM2	38 $\pi^- p \to \pi^0\pi^0 n$
26 ± 10		AMSLER	95B	CBAR	0.0 $\overline{p}p \to 3\pi^0$
∼ 112		[50] AMSLER	95D	CBAR	0.0 $\overline{p}p \to \pi^0\pi^0\pi^0, \pi^0\eta\eta, \pi^0\pi^0\eta$
80 ± 12		[51] ANISOVICH	95	RVUE	
30		JANSSEN	95	RVUE	$\pi\pi \to \pi\pi, K\overline{K}$
74		[52] BUGG	94	RVUE	$\overline{p}p \to \eta 2\pi^0$
29 ± 2		[53] KAMINSKI	94	RVUE	$\pi\pi \to \pi\pi, K\overline{K}$
46		[54] ZOU	94B	RVUE	
48 ± 12		[55] MORGAN	93	RVUE	$\pi\pi(K\overline{K}) \to \pi\pi(K\overline{K}), J/\psi \to \phi\pi\pi(K\overline{K}), D_s \to \pi(\pi\pi)$
37.4 ± 10.6		[45] AGUILAR-...	91	EHS	400 pp
72 ± 8		[56] ARMSTRONG	91	OMEG	300 $pp \to pp\pi\pi, ppK\overline{K}$
110 ± 30		BREAKSTONE	90	SFM	$pp \to pp\pi^+\pi^-$
29 ± 13		[45] ABACHI	86B	HRS	$e^+e^- \to \pi^+\pi^- X$
120 ± 281 ± 20		ETKIN	82B	MPS	23 $\pi^- p \to n 2K^0_S$
28 ± 10		[56] GIDAL	81	MRK2	$J/\psi \to \pi^+\pi^- X$
70 to 300		[57] ACHASOV	80	RVUE	
100 ± 80		[58] AGUILAR-...	78	HBC	0.7 $\overline{p}p \to K^0_S K^0_S$
30 ± 8		[56] LEEPER	77	ASPK	2–2.4 $\pi^- p \to \pi^+\pi^- n, K^+K^- n$
48 ± 14		[56] BINNIE	73	CNTR	$\pi^- p \to n$MM
32 ± 10		[59] GRAYER	73	ASPK	17 $\pi^- p \to \pi^+\pi^- n$
30 ± 10		[59] HYAMS	73	ASPK	17 $\pi^- p \to \pi^+\pi^- n$
54 ± 16		[59] PROTOPOP...	73	HBC	7 $\pi^+ p \to \pi^+ p\pi^+\pi^-$

[33] Breit-Wigner $\pi\pi$ width. Using finite width corrections according to FLATTE 76 and ACHASOV 05, and the ratio $g^2_{f_0 K K}/g^2_{f_0 \pi\pi}$ from ABLIKIM 05.

[34] Breit-Wigner, solution 1, PWA ambiguous.

[35] 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.

[36] Using the data of AKHMETSHIN 99C, ACHASOV 00H, and ALOISIO 02D.

[37] Breit-Wigner width.

[38] Supersedes ACHASOV 98I. Using the model of ACHASOV 89.

[39] Supersedes ACHASOV 98I.

[40] In the "narrow resonance" approximation.

[41] From the combined fit of the photon spectra in the reactions $e^+e^- \rightarrow \pi^+\pi^-\gamma$, $\pi^0\pi^0\gamma$.

[42] Supersedes BARBERIS 99 and BARBERIS 99B

[43] T-matrix pole.

[44] On sheet II in a 2 pole solution. The other pole is found on sheet III at (1039−93i) MeV.

[45] From invariant mass fit.

[46] On sheet II in a 2 pole solution. The other pole is found on sheet III at (963-29i) MeV.

[47] Reanalysis of data from HYAMS 73, GRAYER 74, SRINIVASAN 75, and ROSSELET 77 using the interfering amplitude method.

[48] At high $|t|$.

[49] At low $|t|$.

[50] On sheet II in a 4-pole solution, the other poles are found on sheet III at (953−55i) MeV and on sheet IV at (938−35i) MeV.

[51] Combined fit of ALDE 95B, ANISOVICH 94,

[52] On sheet II in a 2 pole solution. The other pole is found on sheet III at (996−103i) MeV.

[53] From sheet II pole position.

[54] On sheet II in a 2 pole solution. The other pole is found on sheet III at (797−185i) MeV and can be interpreted as a shadow pole.

[55] On sheet II in a 2 pole solution. The other pole is found on sheet III at (978−28i) MeV.

[56] From coupled channel analysis.

[57] Coupled channel analysis with finite width corrections.

[58] From coupled channel fit to the HYAMS 73 and PROTOPOPESCU 73 data. With a simultaneous fit to the $\pi\pi$ phase-shifts, inelasticity and to the $K^0_S K^0_S$ invariant mass.

[59] Included in AGUILAR-BENITEZ 78 fit.

$f_0(980)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\pi\pi$	dominant
Γ_2	$K\overline{K}$	seen
Γ_3	$\gamma\gamma$	seen
Γ_4	e^+e^-	

$f_0(980)$ PARTIAL WIDTHS

$\Gamma(\gamma\gamma)$ Γ_3

VALUE (keV)	DOCUMENT ID		TECN	COMMENT
0.29 $^{+0.07}_{-0.09}$ OUR AVERAGE				
$0.205^{+0.095}_{-0.083}{}^{+0.147}_{-0.117}$	[60] MORI	07	BELL	10.6 $e^+e^- \to e^+e^-\pi^+\pi^-$
$0.28\ ^{+0.09}_{-0.13}$	[61] BOGLIONE	99	RVUE	$\gamma\gamma \to \pi^+\pi^-$, $\pi^0\pi^0$
$0.42\ \pm0.06\ \pm0.18$	[62] OEST	90	JADE	$e^+e^- \to e^+e^-\pi^0\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.29\ \pm0.07\ \pm0.12$	[63,64] BOYER	90	MRK2	$e^+e^- \to e^+e^-\pi^+\pi^-$
$0.31\ \pm0.14\ \pm0.09$	[63,64] MARSISKE	90	CBAL	$e^+e^- \to e^+e^-\pi^0\pi^0$
$0.63\ \pm0.14$	[65] MORGAN	90	RVUE	$\gamma\gamma \to \pi^+\pi^-$, $\pi^0\pi^0$

[60] Using finite width corrections according to FLATTE 76 and ACHASOV 05, and the ratio $g^2_{f_0 K K}/g^2_{f_0 \pi\pi}$ from ABLIKIM 05.
[61] Supersedes MORGAN 90.
[62] OEST 90 quote systematic errors $^{+0.08}_{-0.18}$. We use ±0.18. Observed 60 events.
[63] From analysis allowing arbitrary background unconstrained by unitarity.
[64] Data included in MORGAN 90, BOGLIONE 99 analyses.
[65] From amplitude analysis of BOYER 90 and MARSISKE 90, data corresponds to resonance parameters $m = 989$ MeV, $\Gamma = 61$ MeV.

$\Gamma(e^+e^-)$ Γ_4

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<8.4	90	VOROBYEV	88	ND	$e^+e^- \to \pi^0\pi^0$

$f_0(980)$ BRANCHING RATIOS

$\Gamma(\pi\pi)/[\Gamma(\pi\pi)+\Gamma(K\overline{K})]$ $\Gamma_1/(\Gamma_1+\Gamma_2)$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.52 ± 0.12	9.9k	[66] AUBERT	06O	BABR	$B^\pm \to K^\pm\pi^\pm\pi^\mp$
$0.75^{+0.11}_{-0.13}$		[67] ABLIKIM	05Q	BES2	$\chi_{c0} \to 2\pi^+2\pi^-$, $\pi^+\pi^-K^+K^-$
0.84 ± 0.02		[68] ANISOVICH	02D	SPEC	Combined fit
~ 0.68		OLLER	99B	RVUE	$\pi\pi \to \pi\pi$, $K\overline{K}$
0.67 ± 0.09		[69] LOVERRE	80	HBC	4 $\pi^- p \to n2K^0_S$
$0.81^{+0.09}_{-0.04}$		[69] CASON	78	STRC	7 $\pi^- p \to n2K^0_S$
0.78 ± 0.03		[69] WETZEL	76	OSPK	8.9 $\pi^- p \to n2K^0_S$

[66] Recalculated by us using $\Gamma(K^+K^-)$ / $\Gamma(\pi^+\pi^-) = 0.69 \pm 0.32$ from AUBERT 06O and isospin relations.
[67] Using data from ABLIKIM 04G.
[68] 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.
[69] Measure $\pi\pi$ elasticity assuming two resonances coupled to the $\pi\pi$ and $K\overline{K}$ channels only.

$f_0(980)$ REFERENCES

AMBROSINO	07	EPJ C49 473	F. Ambrosino *et al.*	(KLOE Collab.)
MORI	07	PR D75 051101R	T. Mori *et al.*	(BELLE Collab.)
AMBROSINO	06B	PL B634 148	F. Ambrosino *et al.*	(KLOE Collab.)
AUBERT	06O	PR D74 032003	B. Aubert *et al.*	(BABAR Collab.)
GARMASH	06	PRL 96 251803	A. Garmash *et al.*	(BELLE Collab.)
ABLIKIM	05	PL B607 243	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05Q	PR D72 092002	M. Ablikim *et al.*	(BES Collab.)
ACHASOV	05	PR D72 013006	N.N. Achasov, G.N. Shestakov	
GARMASH	05	PR D71 092003	A. Garmash *et al.*	(BELLE Collab.)
ABLIKIM	04G	PR D70 092002	M. Ablikim *et al.*	(BES Collab.)
ANISOVICH	03	EPJ A16 229	V.V. Anisovich *et al.*	
TIKHOMIROV	03	PAN 66 828	G.D. Tikhomirov *et al.*	
		Translated from YAF 66 860.		
ALOISIO	02D	PL B537 21	A. Aloisio *et al.*	(KLOE Collab.)
ANISOVICH	02D	PAN 65 1545	V.V. Anisovich *et al.*	
		Translated from YAF 65 1583.		
BRAMON	02	EPJ C26 253	A. Bramon *et al.*	
ACHASOV	01F	PR D63 094007	N.N. Achasov *et al.*	(Novosibirsk SND Collab.)
AITALA	01A	PRL 86 765	E.M. Aitala *et al.*	(FNAL E791 Collab.)
AITALA	01B	PRL 86 770	E.M. Aitala *et al.*	(FNAL E791 Collab.)
ACHASOV	00H	PL B485 349	M.N. Achasov *et al.*	(Novosibirsk SND Collab.)
AKHMETSHIN	99B	PL B462 371	R.R. Akhmetshin *et al.*	(Novosibirsk CMD-2 Collab.)
AKHMETSHIN	99C	PL B462 380	R.R. Akhmetshin *et al.*	(Novosibirsk CMD-2 Collab.)
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ANISOVICH	95	PL B355 363	V.V. Anisovich *et al.*	(PNPI, SERP)
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AMSLER	94D	PL B333 277	C. Amsler *et al.*	(Crystal Barrel Collab.)
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KAMINSKI	94	PR D50 3145	R. Kaminski, L. Lesniak, J.P. Maillet	(CRAC+)
ZOU	94B	PR D50 591	B.S. Zou, D.V. Bugg	(LOQM)
MORGAN	93	PR D48 1185	D. Morgan, M.R. Pennington	(RAL, DURH)
AGUILAR-...	91	ZPHY C50 405	M. Aguilar-Benitez *et al.*	(LEBC-EHS Collab.)
ARMSTRONG	91	ZPHY C51 351	T.A. Armstrong *et al.*	(ATHU, BARI, BIRM+)
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