$a_0(1450)$

$I^G(J^{PC}) = 1^-(0^{++})$

See minireview on scalar mesons under $f_0(600)$.

$a_0(1450)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
1474±19 OUR AVERAGE					
1480±30		ABELE	98	CBAR	0.0 $\overline{p}p \to K^0_L K^\pm \pi^\mp$
1470±25		[1] AMSLER	95D	CBAR	0.0 $\overline{p}p \to \pi^0\pi^0\pi^0$, $\pi^0\eta\eta$, $\pi^0\pi^0\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1477±10	80k	[2] UMAN	06	E835	5.2 $\overline{p}p \to \eta\eta\pi^0$
1441^{+40}_{-15}	35280	[5] BAKER	03	SPEC	$\overline{p}p \to \omega\pi^+\pi^-\pi^0$
1303±16		[6] BARGIOTTI	03	OBLX	$\overline{p}p$
1296±10		[3] AMSLER	02	CBAR	0.9 $\overline{p}p \to \pi^0\pi^0\eta$
1565±30		[3] ANISOVICH	98B	RVUE	Compilation
1290±10		BERTIN	98B	OBLX	0.0 $\overline{p}p \to K^\pm K_s \pi^\mp$
1450±40		AMSLER	94D	CBAR	0.0 $\overline{p}p \to \pi^0\pi^0\eta$
1435±40		BUGG	94	RVUE	$\overline{p}p \to \eta 2\pi^0$
1410±25		ETKIN	82C	MPS	23 $\pi^- p \to n 2K^0_S$
∼ 1300		MARTIN	78	SPEC	10 $K^\pm p \to K^0_S \pi p$
1255± 5		[4] CASON	76		

[1] Coupled-channel analysis of AMSLER 95B, AMSLER 95C, and AMSLER 94D.
[2] Statistical error only.
[3] T-matrix pole.
[4] Isospin 0 not excluded.
[5] From the pole position.
[6] Coupled channel analysis of $\pi^+\pi^-\pi^0$, $K^+K^-\pi^0$, and $K^\pm K^0_S \pi^\mp$.

$a_0(1450)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
265±13 OUR AVERAGE					
265±15		ABELE	98	CBAR	0.0 $\overline{p}p \to K^0_L K^\pm \pi^\mp$
265±30		[7] AMSLER	95D	CBAR	0.0 $\overline{p}p \to \pi^0\pi^0\pi^0$, $\pi^0\eta\eta$, $\pi^0\pi^0\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
267±11	80k	[8] UMAN	06	E835	5.2 $\overline{p}p \to \eta\eta\pi^0$
110±14	35280	[11] BAKER	03	SPEC	$\overline{p}p \to \omega\pi^+\pi^-\pi^0$
92±16		[12] BARGIOTTI	03	OBLX	$\overline{p}p$
81±21		[9] AMSLER	02	CBAR	0.9 $\overline{p}p \to \pi^0\pi^0\eta$
292±40		[9] ANISOVICH	98B	RVUE	Compilation
80± 5		BERTIN	98B	OBLX	0.0 $\overline{p}p \to K^\pm K_s \pi^\mp$

270±40	AMSLER	94D	CBAR	0.0 $\overline{p}p \rightarrow \pi^0\pi^0\eta$
270±40	BUGG	94	RVUE	$\overline{p}p \rightarrow \eta 2\pi^0$
230±30	ETKIN	82C	MPS	23 $\pi^- p \rightarrow n 2K^0_S$
∼ 250	MARTIN	78	SPEC	10 $K^\pm p \rightarrow K^0_S \pi p$
79±10	[10] CASON	76		

[7] Coupled-channel analysis of AMSLER 95B, AMSLER 95C, and AMSLER 94D.
[8] Statistical error only.
[9] T-matrix pole.
[10] Isospin 0 not excluded.
[11] From the pole position.
[12] Coupled channel analysis of $\pi^+\pi^-\pi^0$, $K^+K^-\pi^0$, and $K^\pm K^0_S \pi^\mp$.

$a_0(1450)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\pi\eta$	seen
Γ_2	$\pi\eta'(958)$	seen
Γ_3	$K\overline{K}$	seen
Γ_4	$\omega\pi\pi$	seen

$\Gamma(\pi\eta'(958))/\Gamma(\pi\eta)$ — Γ_2/Γ_1

VALUE	DOCUMENT ID		TECN	COMMENT
0.35±0.16	[13] ABELE	98	CBAR	0.0 $\overline{p}p \rightarrow K^0_L K^\pm \pi^\mp$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.43±0.19	ABELE	97C	CBAR	0.0 $\overline{p}p \rightarrow \pi^0\pi^0\eta'$

[13] Using $\pi^0\eta$ from AMSLER 94D.

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.88±0.23	[13] ABELE	98	CBAR	0.0 $\overline{p}p \rightarrow K^0_L K^\pm \pi^\mp$

$\Gamma(\omega\pi\pi)/\Gamma(\pi\eta)$ — Γ_4/Γ_1

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
10.7±2.3	35280	[14] BAKER	03	SPEC	$\overline{p}p \rightarrow \omega\pi^+\pi^-\pi^0$

[14] Using results on $\overline{p}p \rightarrow a_0(1450)^0\pi^0$, $a_0(1450) \rightarrow \eta\pi^0$ from ABELE 96C and assuming the $\omega\rho$ mechanism for the $\omega\pi\pi$ state.

$a_0(1450)$ REFERENCES

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BARGIOTTI	03	EPJ C26 371	M. Bargiotti *et al.*	(OBELIX Collab.)
AMSLER	02	EPJ C23 29	C. Amsler *et al.*	
ABELE	98	PR D57 3860	A. Abele *et al.*	(Crystal Barrel Collab.)
ANISOVICH	98B	SPU 41 419	V.V. Anisovich *et al.*	
		Translated from UFN 168 481.		
BERTIN	98B	PL B434 180	A. Bertin *et al.*	(OBELIX Collab.)
ABELE	97C	PL B404 179	A. Abele *et al.*	(Crystal Barrel Collab.)
ABELE	96C	NP A609 562	A. Abele *et al.*	(Crystal Barrel Collab.)
AMSLER	95B	PL B342 433	C. Amsler *et al.*	(Crystal Barrel Collab.)
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