

$a_0(1450)$

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

See minireview on scalar mesons under $f_0(1370)$.

$a_0(1450)$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
1474 ± 19 OUR AVERAGE			
1480 ± 30	ABELE	98 CBAR	0.0 $\bar{p}p \rightarrow K_L^0 K^\pm \pi^\mp$
1470 ± 25	¹ AMSLER	95D CBAR	0.0 $\bar{p}p \rightarrow \pi^0 \pi^0 \pi^0, \pi^0 \eta \eta, \pi^0 \pi^0 \eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
1565 ± 30	² ANISOVICH	98B RVUE	Compilation
1290 ± 10	BERTIN	98B OBLX	0.0 $\bar{p}p \rightarrow K^\pm K_S \pi^\mp$
1450 ± 40	AMSLER	94D CBAR	0.0 $\bar{p}p \rightarrow \pi^0 \pi^0 \eta$
1435 ± 40	BUGG	94 RVUE	$\bar{p}p \rightarrow \eta 2\pi^0$
1410 ± 25	ETKIN	82C MPS	23 $\pi^- p \rightarrow n 2K_S^0$
~ 1300	MARTIN	78 SPEC	10 $K^\pm p \rightarrow K_S^0 \pi p$
1255 ± 5	³ CASON	76	

¹ Coupled-channel analysis of AMSLER 95B, AMSLER 95C, and AMSLER 94D.

² T-matrix pole.

³ Isospin 0 not excluded.

$a_0(1450)$ WIDTH

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
265 ± 13 OUR AVERAGE			
265 ± 15	ABELE	98 CBAR	0.0 $\bar{p}p \rightarrow K_L^0 K^\pm \pi^\mp$
265 ± 30	⁴ AMSLER	95D CBAR	0.0 $\bar{p}p \rightarrow \pi^0 \pi^0 \pi^0, \pi^0 \eta \eta, \pi^0 \pi^0 \eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •			
292 ± 40	⁵ ANISOVICH	98B RVUE	Compilation
80 ± 5	BERTIN	98B OBLX	0.0 $\bar{p}p \rightarrow K^\pm K_S \pi^\mp$
270 ± 40	AMSLER	94D CBAR	0.0 $\bar{p}p \rightarrow \pi^0 \pi^0 \eta$
270 ± 40	BUGG	94 RVUE	$\bar{p}p \rightarrow \eta 2\pi^0$
230 ± 30	ETKIN	82C MPS	23 $\pi^- p \rightarrow n 2K_S^0$
~ 250	MARTIN	78 SPEC	10 $K^\pm p \rightarrow K_S^0 \pi p$
79 ± 10	⁶ CASON	76	

⁴ Coupled-channel analysis of AMSLER 95B, AMSLER 95C, and AMSLER 94D.

⁵ T-matrix pole.

⁶ Isospin 0 not excluded.

$a_0(1450)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad \pi \eta$	seen
$\Gamma_2 \quad \pi \eta'(958)$	seen
$\Gamma_3 \quad K \bar{K}$	seen

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

VALUE	DOCUMENT ID	TECN	COMMENT
0.35 ± 0.16	⁷ ABELE	98 CBAR	0.0 $\bar{p}p \rightarrow K_L^0 K^\pm \pi^\mp$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
0.43 ± 0.19	ABELE	97C CBAR	0.0 $\bar{p}p \rightarrow \pi^0 \pi^0 \eta'$

⁷ Using $\pi^0 \eta$ from AMSLER 94D.

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

VALUE	DOCUMENT ID	TECN	COMMENT
0.88 ± 0.23	⁷ ABELE	98 CBAR	0.0 $\bar{p}p \rightarrow K_L^0 K^\pm \pi^\mp$

$a_0(1450)$ REFERENCES

ABELE	98 PR D57 3860	A. Abele <i>et al.</i>	(Crystal Barrel Collab.)
ANISOVICH	98B UFN 41 419	V.V. Anisovich <i>et al.</i>	
BERTIN	98B PL B434 180	A. Bertin <i>et al.</i>	(OBELIX Collab.)
ABELE	97C PL B404 179	A. Abele <i>et al.</i>	(Crystal Barrel Collab.)
AMSLER	95B PL B342 433	C. Amsler <i>et al.</i>	(Crystal Barrel Collab.)
AMSLER	95C PL B353 571	C. Amsler <i>et al.</i>	(Crystal Barrel Collab.)
AMSLER	95D PL B355 425	C. Amsler <i>et al.</i>	(Crystal Barrel Collab.)
AMSLER	94D PL B333 277	C. Amsler <i>et al.</i>	(Crystal Barrel Collab.) IGJPC
BUGG	94 PR D50 4412	D.V. Bugg <i>et al.</i>	(LOQM)
ETKIN	82C PR D25 2446	A. Etkin <i>et al.</i>	(BNL, CUNY, TUFTS, VAND)
MARTIN	78 NP B134 392	A.D. Martin <i>et al.</i>	(DURH, GEVA)
CASON	76 PRL 36 1485	N.M. Cason <i>et al.</i>	(NDAM, ANL)

OTHER RELATED PAPERS

MASONI	99 EPJ C8 385	A. Masoni
AMSLER	98 RMP 70 1293	C. Amsler