

**$a_0(1450)$** 

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

See minireview on scalar mesons under  $f_0(600)$ . **$a_0(1450)$  MASS**

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>1474 ± 19 OUR AVERAGE</b>				
1480 ± 30		ABELE	98	CBAR 0.0 $\bar{p}p \rightarrow K^0 K^\pm \pi^\mp$
1470 ± 25		<sup>1</sup> 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. ● ● ●				
1477 ± 10	80k	<sup>2</sup> UMAN	06	E835 5.2 $\bar{p}p \rightarrow \eta \eta \pi^0$
1441 <sup>+40</sup> <sub>-15</sub>	35280	<sup>5</sup> BAKER	03	SPEC $\bar{p}p \rightarrow \omega \pi^+ \pi^- \pi^0$
1303 ± 16		<sup>6</sup> BARGIOTTI	03	OBLX $\bar{p}p$
1296 ± 10		<sup>3</sup> AMSLER	02	CBAR 0.9 $\bar{p}p \rightarrow \pi^0 \pi^0 \eta$
1565 ± 30		<sup>3</sup> ANISOVICH	98B	RVUE Compilation
1290 ± 10		BERTIN	98B	OBLX 0.0 $\bar{p}p \rightarrow K^\pm K_S^0 \pi^\mp$
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		<sup>4</sup> CASON	76	

<sup>1</sup> Coupled-channel analysis of AMSLER 95B, AMSLER 95C, and AMSLER 94D.<sup>2</sup> Statistical error only.<sup>3</sup> T-matrix pole.<sup>4</sup> Isospin 0 not excluded.<sup>5</sup> From the pole position.<sup>6</sup> Coupled channel analysis of  $\pi^+ \pi^- \pi^0$ ,  $K^+ K^- \pi^0$ , and  $K^\pm K_S^0 \pi^\mp$ . **$a_0(1450)$  WIDTH**

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>265 ± 13 OUR AVERAGE</b>				
265 ± 15		ABELE	98	CBAR 0.0 $\bar{p}p \rightarrow K^0 K^\pm \pi^\mp$
265 ± 30		<sup>7</sup> 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. ● ● ●				
267 ± 11	80k	<sup>8</sup> UMAN	06	E835 5.2 $\bar{p}p \rightarrow \eta \eta \pi^0$
110 ± 14	35280	<sup>11</sup> BAKER	03	SPEC $\bar{p}p \rightarrow \omega \pi^+ \pi^- \pi^0$
92 ± 16		<sup>12</sup> BARGIOTTI	03	OBLX $\bar{p}p$
81 ± 21		<sup>9</sup> AMSLER	02	CBAR 0.9 $\bar{p}p \rightarrow \pi^0 \pi^0 \eta$
292 ± 40		<sup>9</sup> ANISOVICH	98B	RVUE Compilation
80 ± 5		BERTIN	98B	OBLX 0.0 $\bar{p}p \rightarrow K^\pm K_S^0 \pi^\mp$

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	<sup>10</sup> CASON	76			

<sup>7</sup> Coupled-channel analysis of AMSLER 95B, AMSLER 95C, and AMSLER 94D.

<sup>8</sup> Statistical error only.

<sup>9</sup> T-matrix pole.

<sup>10</sup> Isospin 0 not excluded.

<sup>11</sup> From the pole position.

<sup>12</sup> Coupled channel analysis of  $\pi^+ \pi^- \pi^0$ ,  $K^+ K^- \pi^0$ , and  $K^\pm K_S^0 \pi^\mp$ .

## **$a_0(1450)$ DECAY MODES**

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $\pi \eta$	seen
$\Gamma_2$ $\pi \eta'(958)$	seen
$\Gamma_3$ $K \bar{K}$	seen
$\Gamma_4$ $\omega \pi \pi$	seen

### $\Gamma(\pi \eta'(958))/\Gamma(\pi \eta)$ $\Gamma_2/\Gamma_1$

VALUE	DOCUMENT ID	TECN	COMMENT
<b>0.35±0.16</b>	<sup>13</sup> 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 $\bar{p}p \rightarrow \pi^0 \pi^0 \eta'$
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<sup>13</sup> Using  $\pi^0 \eta$  from AMSLER 94D.

### $\Gamma(K \bar{K})/\Gamma(\pi \eta)$ $\Gamma_3/\Gamma_1$

VALUE	DOCUMENT ID	TECN	COMMENT
<b>0.88±0.23</b>	<sup>13</sup> ABELE	98	CBAR 0.0 $\bar{p}p \rightarrow K_L^0 K^\pm \pi^\mp$

### $\Gamma(\omega \pi \pi)/\Gamma(\pi \eta)$ $\Gamma_4/\Gamma_1$

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

10.7±2.3	35280	<sup>14</sup> BAKER	03	SPEC $\bar{p}p \rightarrow \omega \pi^+ \pi^- \pi^0$
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<sup>14</sup> Using results on  $\bar{p}p \rightarrow a_0(1450)^0 \pi^0$ ,  $a_0(1450) \rightarrow \eta \pi^0$  from ABELE 96C and assuming the  $\omega \rho$  mechanism for the  $\omega \pi \pi$  state.

## $a_0(1450)$ REFERENCES

UMAN	06	PR D73 052009	I. Uman <i>et al.</i>	(FNAL E835)
BAKER	03	PL B563 140	C.A. Baker <i>et al.</i>	
BARGIOTTI	03	EPJ C26 371	M. Bargiotti <i>et al.</i>	(OBELIX Collab.)
AMSLER	02	EPJ C23 29	C. Amsler <i>et al.</i>	
ABELE	98	PR D57 3860	A. Abele <i>et al.</i>	(Crystal Barrel Collab.)
ANISOVICH	98B	SPU 41 419	V.V. Anisovich <i>et al.</i>	
		Translated from UFN 168 481.		
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.)
ABELE	96C	NP A609 562	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)
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MARTIN	78	NP B134 392	A.D. Martin <i>et al.</i>	(DURH, GEVA)
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