

# $a_2(1700)$

$$I^G(J^{PC}) = 1^-(2^{++})$$

OMITTED FROM SUMMARY TABLE

## $a_2(1700)$ MASS

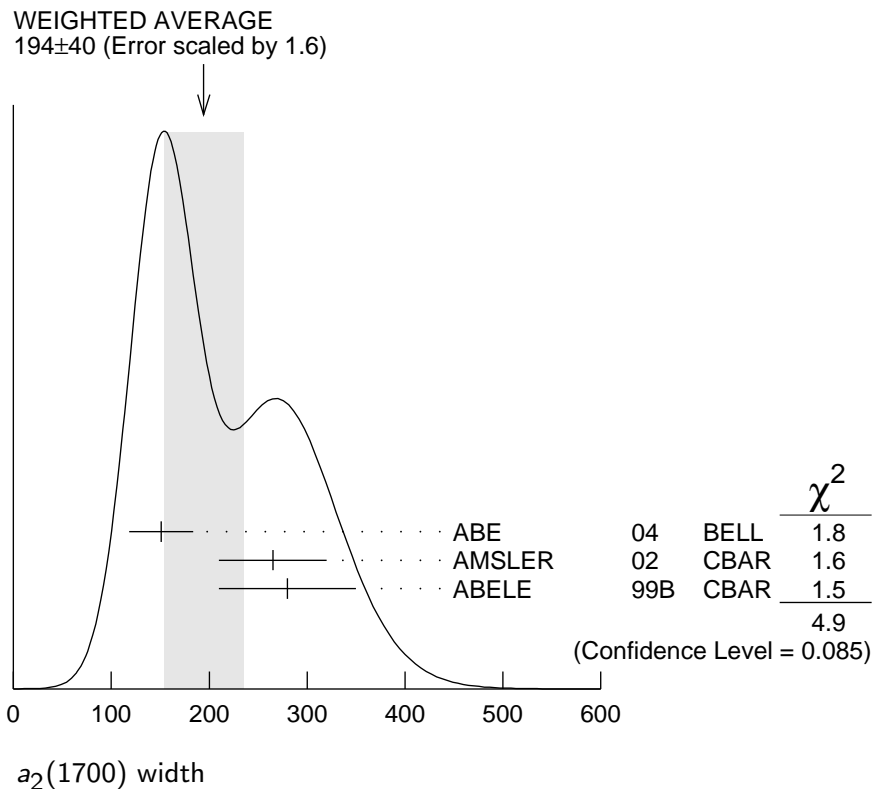
<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
<b>1732±16 OUR AVERAGE</b>		Error includes scale factor of 1.9.			
1737± 5± 7		ABE	04	BELL	10.6 $e^+e^- \rightarrow e^+e^-K^+K^-$
1698±44		<sup>1</sup> AMSLER	02	CBAR	0.9 $\bar{p}p \rightarrow \pi^0\eta\eta$
1660±40		ABELE	99B	CBAR	1.94 $\bar{p}p \rightarrow \pi^0\eta\eta$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
1675±25		ANISOVICH	09	RVUE	0.0 $\bar{p}p, \pi N$
1722± 9±15	18k	<sup>2</sup> SCHEGELSKY	06	RVUE 0	$\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$
1702± 7	80k	<sup>3</sup> UMAN	06	E835	5.2 $\bar{p}p \rightarrow \eta\eta\pi^0$
1721±13±44	145k	LU	05	B852	18 $\pi^-p \rightarrow \omega\pi^-\pi^0p$
1767±14	221	<sup>4</sup> ACCIARRI	01H	L3	$\gamma\gamma \rightarrow K_S^0K_S^0, E_{cm}^{ee} = 91, 183-209 \text{ GeV}$
~ 1775		<sup>5</sup> GRYGOREV	99	SPEC	40 $\pi^-p \rightarrow K_S^0K_S^0n$
1752±21± 4		ACCIARRI	97T	L3	$\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$

<sup>1</sup> T-matrix pole.  
<sup>2</sup> From analysis of L3 data at 183–209 GeV.  
<sup>3</sup> Statistical error only.  
<sup>4</sup> Spin 2 dominant, isospin not determined, could also be  $I=1$ .  
<sup>5</sup> Possibly two  $J^P = 2^+$  resonances with isospins 0 and 1.

## $a_2(1700)$ WIDTH

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
<b>194± 40 OUR AVERAGE</b>		Error includes scale factor of 1.6. See the ideogram below.			
151± 22±24		ABE	04	BELL	10.6 $e^+e^- \rightarrow e^+e^-K^+K^-$
265± 55		<sup>6</sup> AMSLER	02	CBAR	0.9 $\bar{p}p \rightarrow \pi^0\eta\eta$
280± 70		ABELE	99B	CBAR	1.94 $\bar{p}p \rightarrow \pi^0\eta\eta$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
270 <sup>+</sup> <sub>-20</sub>		ANISOVICH	09	RVUE	0.0 $\bar{p}p, \pi N$
336± 20±20	18k	<sup>7</sup> SCHEGELSKY	06	RVUE 0	$\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$
417± 19	80k	<sup>8</sup> UMAN	06	E835	5.2 $\bar{p}p \rightarrow \eta\eta\pi^0$
279± 49±66	145k	LU	05	B852	18 $\pi^-p \rightarrow \omega\pi^-\pi^0p$
187± 60	221	<sup>9</sup> ACCIARRI	01H	L3	$\gamma\gamma \rightarrow K_S^0K_S^0, E_{cm}^{ee} = 91, 183-209 \text{ GeV}$
150±110±34		ACCIARRI	97T	L3	$\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$

- <sup>6</sup> T-matrix pole.
- <sup>7</sup> From analysis of L3 data at 183–209 GeV.
- <sup>8</sup> Statistical error only.
- <sup>9</sup> Spin 2 dominant, isospin not determined, could also be  $l=1$ .



### $a_2(1700)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $\eta\pi$	seen
$\Gamma_2$ $\gamma\gamma$	
$\Gamma_3$ $\rho\pi$	
$\Gamma_4$ $f_2(1270)\pi$	
$\Gamma_5$ $K\bar{K}$	seen
$\Gamma_6$ $\omega\pi^-\pi^0$	seen
$\Gamma_7$ $\omega\rho$	seen

### $a_2(1700)$ PARTIAL WIDTHS

$\Gamma(\eta\pi)$	$\Gamma_1$
VALUE (MeV)	
EVTS	
DOCUMENT ID	
TECN	
COMMENT	
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●	
9.5±2.0	
870	
<sup>10</sup> SCHEGELSKY 06A	
RVUE	
$\gamma\gamma \rightarrow K_S^0 K_S^0$	

$\Gamma(\gamma\gamma)$   $\Gamma_2$

VALUE (keV)	EVTS	DOCUMENT ID	TECN	COMMENT
0.30±0.05	870	<sup>10</sup> SCHEGELSKY 06A	RVUE	$\gamma\gamma \rightarrow K_S^0 K_S^0$

$\Gamma(K\bar{K})$   $\Gamma_5$

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
5.0±3.0	870	<sup>10</sup> SCHEGELSKY 06A	RVUE	$\gamma\gamma \rightarrow K_S^0 K_S^0$

<sup>10</sup> From analysis of L3 data at 91 and 183–209 GeV, using  $a_2(1700)$  mass of 1730 MeV and width of 340 MeV, and SU(3) relations.

$a_2(1700) \Gamma(i)\Gamma(\gamma\gamma)/\Gamma(\text{total})$

$[\Gamma(\rho\pi) + \Gamma(f_2(1270)\pi)] \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$   $(\Gamma_3+\Gamma_4)\Gamma_2/\Gamma$

VALUE (keV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>0.29±0.04±0.02</b>		ACCIARRI 97T	L3	$\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$
0.37 <sup>+0.12</sup> <sub>-0.08</sub> ±0.10	18k	<sup>11</sup> SCHEGELSKY 06	RVUE	$\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$

$\Gamma(K\bar{K}) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$   $\Gamma_5\Gamma_2/\Gamma$

VALUE (eV)	DOCUMENT ID	TECN	COMMENT
20.6± 4.2± 4.6	<sup>12</sup> ABE 04	BELL	10.6 $e^+e^- \rightarrow e^+e^-K^+K^-$
49 ±11 ±13	<sup>13</sup> ACCIARRI 01H	L3	$\gamma\gamma \rightarrow K_S^0 K_S^0, E_{\text{cm}}^{ee} = 91, 183\text{--}209 \text{ GeV}$

<sup>11</sup> From analysis of L3 data at 183–209 GeV.

<sup>12</sup> Assuming spin 2.

<sup>13</sup> Spin 2 dominant, isospin not determined, could also be  $I=1$ .

$a_2(1700)$  BRANCHING RATIOS

$\Gamma(\rho\pi)/\Gamma(f_2(1270)\pi)$   $\Gamma_3/\Gamma_4$

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
3.4±0.4±0.1	18k	<sup>14</sup> SCHEGELSKY 06	RVUE	$\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$

<sup>14</sup> From analysis of L3 data at 183–209 GeV.

$a_2(1700)$  REFERENCES

ANISOVICH 09	IJP A24 2481	V.V. Anisovich, A.V. Sarantsev
SCHEGELSKY 06	EPJ A27 199	V.A. Schegelsky <i>et al.</i>
SCHEGELSKY 06A	EPJ A27 207	V.A. Schegelsky <i>et al.</i>
UMAN 06	PR D73 052009	I. Uman <i>et al.</i> (FNAL E835)
LU 05	PRL 94 032002	M. Lu <i>et al.</i> (BNL E852 Collab.)
ABE 04	EPJ C32 323	K. Abe <i>et al.</i> (BELLE Collab.)
AMSLER 02	EPJ C23 29	C. Amisler <i>et al.</i>
ACCIARRI 01H	PL B501 173	M. Acciarri <i>et al.</i> (L3 Collab.)
ABELE 99B	EPJ C8 67	A. Abele <i>et al.</i> (Crystal Barrel Collab.)
GRYGOREV 99	PAN 62 470	V.K. Grygorev <i>et al.</i>
ACCIARRI 97T	PL B413 147	M. Acciarri <i>et al.</i> (L3 Collab.)

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