$a_2(1700)$

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

$a_2(1700)$ MASS

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1705±40 OUR AVERAGE					
1722±15±67		[1] RODAS	19	JPAC	191 $\pi^- p \to \eta^{(\prime)} \pi^- p$
1698±44		[2] AMSLER	02	CBAR	0.9 $\overline{p}p \to \pi^0\eta\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1681^{+22}_{-35}	46M	[3,4] AGHASYAN	18B	COMP	190 $\pi^- p \to \pi^-\pi^+\pi^- p$
1720±10±60		[5] JACKURA	18	JPAC	$\pi^- p \to \eta\pi^- p$
1726±12±25		[4] ABLIKIM	17K	BES3	$\psi(2S) \to \gamma\eta\pi^+\pi^-$
1675±25		ANISOVICH	09	RVUE	0.0 $\overline{p}p$, πN
1722± 9±15	18k	[6] SCHEGELSKY	06	RVUE	$\gamma\gamma \to \pi^+\pi^-\pi^0$
1702± 7	80k	[7] UMAN	06	E835	5.2 $\overline{p}p \to \eta\eta\pi^0$
1721±13±44	145k	LU	05	B852	18 $\pi^- p \to \omega\pi^-\pi^0 p$
1737± 5± 7		ABE	04	BELL	10.6 $e^+e^- \to e^+e^-K^+K^-$
1767±14	221	[8] ACCIARRI	01H	L3	$\gamma\gamma \to K^0_S K^0_S$, $E^{ee}_{\rm cm}$= 91, 183–209 GeV
1660±40		[4] ABELE	99B	CBAR	1.94 $\overline{p}p \to \pi^0\eta\eta$
~ 1775		[9] GRYGOREV	99	SPEC	40 $\pi^- p \to K^0_S K^0_S n$
1752±21± 4		ACCIARRI	97T	L3	$\gamma\gamma \to \pi^+\pi^-\pi^0$

[1] The coupled-channel analysis of both the $\eta\pi$ and $\eta'\pi$ systems using ADOLPH 15data. The mass is extracted from the T-matrix pole.
[2] T-matrix pole.
[3] Statistical error negligible.
[4] Breit-Wigner mass.
[5] Superseded by RODAS 19.
[6] From analysis of L3 data at 183–209 GeV.
[7] Statistical error only.
[8] Spin 2 dominant, isospin not determined, could also be I=1.
[9] Possibly two $J^P = 2^+$ resonances with isospins 0 and 1.

$a_2(1700)$ WIDTH

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
258± 40 OUR AVERAGE					
247± 17±63		[1] RODAS	19	JPAC	191 $\pi^- p \to \eta^{(\prime)} \pi^- p$
265± 55		[2] AMSLER	02	CBAR	0.9 $\overline{p}p \to \pi^0\eta\eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
436^{+20}_{-16}	46M	[3,4] AGHASYAN	18B	COMP	190 $\pi^- p \to \pi^-\pi^+\pi^- p$

$280\pm\ 10\pm70$		[5] JACKURA	18	JPAC	$\pi^- p \to\ \eta\pi^- p$
$190\pm\ 18\pm30$		[4] ABLIKIM	17K	BES3	$\psi(2S) \to\ \gamma\eta\pi^+\pi^-$
$270^{+\ 50}_{-\ 20}$		ANISOVICH	09	RVUE	0.0 $\overline{p}p$, πN
$336\pm\ 20\pm20$	18k	[6] SCHEGELSKY	06	RVUE	$\gamma\gamma \to\ \pi^+\pi^-\pi^0$
$417\pm\ 19$	80k	[7] UMAN	06	E835	5.2 $\overline{p}p \to\ \eta\eta\pi^0$
$279\pm\ 49\pm66$	145k	LU	05	B852	18 $\pi^- p \to\ \omega\pi^-\pi^0 p$
$151\pm\ 22\pm24$		ABE	04	BELL	10.6 $e^+e^- \to\ e^+e^-K^+K^-$
$187\pm\ 60$	221	[8] ACCIARRI	01H	L3	$\gamma\gamma \to\ K^0_S K^0_S$, $E^{ee}_{\rm cm}$= 91, 183–209 GeV
$280\pm\ 70$		[4] ABELE	99B	CBAR	1.94 $\overline{p}p \to\ \pi^0\eta\eta$
$150\pm110\pm34$		ACCIARRI	97T	L3	$\gamma\gamma \to\ \pi^+\pi^-\pi^0$

[1] The coupled-channel analysis of both the $\eta\pi$ and $\eta'\pi$ systems using ADOLPH 15data. The width is extracted from the T-matrix pole.
[2] T-matrix pole.
[3] Statistical error negligible.
[4] Breit-Wigner width.
[5] Superseded by RODAS 19.
[6] From analysis of L3 data at 183–209 GeV.
[7] Statistical error only.
[8] Spin 2 dominant, isospin not determined, could also be I=1.

$a_2(1700)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$\eta\pi$	(3.7 $\pm$1.0) %
Γ_2	$\gamma\gamma$	$(1.16\pm0.27)\times10^{-6}$
Γ_3	$\rho\pi$	seen
Γ_4	$f_2(1270)\pi$	seen
Γ_5	$K\overline{K}$	(1.9 $\pm$1.2) %
Γ_6	$\omega\pi^-\pi^0$	seen
Γ_7	$\omega\rho$	seen

$a_2(1700)$ PARTIAL WIDTHS

$\Gamma(\eta\pi)$ Γ_1

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
9.5±2.0	870	[1] SCHEGELSKY	06A	RVUE	$\gamma\gamma \to\ K^0_S K^0_S$

$\Gamma(\gamma\gamma)$ Γ_2

VALUE (keV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.30±0.05	870	[1] SCHEGELSKY	06A	RVUE	$\gamma\gamma \to\ K^0_S K^0_S$

$\Gamma(K\overline{K})$ Γ_5

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
5.0±3.0	870	[1] SCHEGELSKY	06A	RVUE	$\gamma\gamma \to K^0_S K^0_S$

[1] 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.

$a_2(1700)$ Γ(i)$\Gamma(\gamma\gamma)/\Gamma$(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*
0.29±0.04±0.02		ACCIARRI	97T	L3	$\gamma\gamma \to \pi^+\pi^-\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.37^{+0.12}_{-0.08}\pm0.10$	18k	[1] SCHEGELSKY	06	RVUE	$\gamma\gamma \to \pi^+\pi^-\pi^0$

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

VALUE (eV)	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
20.6± 4.2± 4.6	[2] ABE	04	BELL	10.6 $e^+e^- \to e^+e^- K^+K^-$
49 ±11 ±13	[3] ACCIARRI	01H	L3	$\gamma\gamma \to K^0_S K^0_S$, E^{ee}_{cm}= 91, 183–209 GeV

[1] From analysis of L3 data at 183–209 GeV.
[2] Assuming spin 2.
[3] Spin 2 dominant, isospin not determined, could also be I=1.

$a_2(1700)$ BRANCHING RATIOS

$\Gamma(\rho\pi)/\Gamma(f_2(1270)\pi)$ Γ_3/Γ_4

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3.4±0.4±0.1	18k	[1] SCHEGELSKY	06	RVUE	$\gamma\gamma \to \pi^+\pi^-\pi^0$

[1] From analysis of L3 data at 183–209 GeV.

$a_2(1700)$ REFERENCES

RODAS	19	PRL 122 042002	A. Rodas *et al.*	(JPAC Collab.)
AGHASYAN	18B	PR D98 092003	M. Aghasyan *et al.*	(COMPASS Collab.)
JACKURA	18	PL B779 464	A. Jackura *et al.*	(JPAC and COMPASS Collab.)
ABLIKIM	17K	PR D95 032002	M. Ablikim *et al.*	(BES III Collab.)
ADOLPH	15	PL B740 303	M. Adolph *et al.*	(COMPASS Collab.)
ANISOVICH	09	IJMP A24 2481	V.V. Anisovich, A.V. Sarantsev	
SCHEGELSKY	06	EPJ A27 199	V.A. Schegelsky *et al.*	
SCHEGELSKY	06A	EPJ A27 207	V.A. Schegelsky *et al.*	
UMAN	06	PR D73 052009	I. Uman *et al.*	(FNAL E835)
LU	05	PRL 94 032002	M. Lu *et al.*	(BNL E852 Collab.)
ABE	04	EPJ C32 323	K. Abe *et al.*	(BELLE Collab.)
AMSLER	02	EPJ C23 29	C. Amsler *et al.*	
ACCIARRI	01H	PL B501 173	M. Acciarri *et al.*	(L3 Collab.)
ABELE	99B	EPJ C8 67	A. Abele *et al.*	(Crystal Barrel Collab.)
GRYGOREV	99	PAN 62 470	V.K. Grygorev *et al.*	
		Translated from YAF 62 513.		
ACCIARRI	97T	PL B413 147	M. Acciarri *et al.*	(L3 Collab.)