$a_2(1320)$

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

$a_2(1320)$ MASS

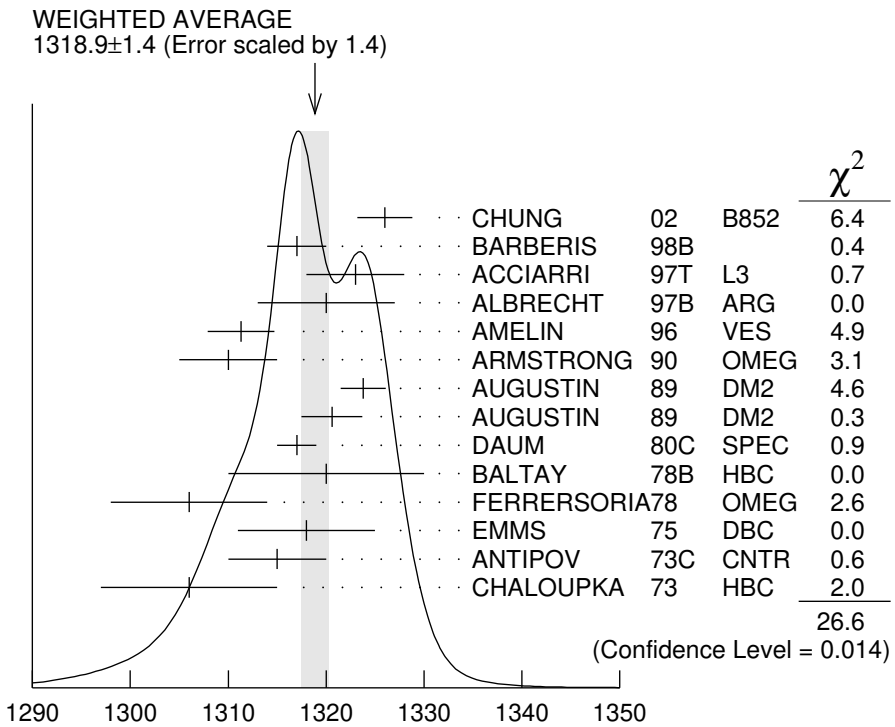
VALUE (MeV)	DOCUMENT ID
1318.3±0.6 OUR AVERAGE Includes data from the 4 datablocks that follow this one. Error includes scale factor of 1.2.	

3π MODE

The data in this block is included in the average printed for a previous datablock.

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
1318.9± 1.4 OUR AVERAGE Error includes scale factor of 1.4. See the ideogram below.						
1326 ± 2 ±2		CHUNG	02	B852		18.3 $\pi^- p \to \pi^+ \pi^- \pi^- p$
1317 ± 3		BARBERIS	98B			450 $p p \to p_f \pi^+ \pi^- \pi^0 p_s$
1323 ± 4 ±3		ACCIARRI	97T	L3		$e^+ e^- \to e^+ e^- \pi^+ \pi^- \pi^0$
1320 ± 7		ALBRECHT	97B	ARG		$e^+ e^- \to e^+ e^- \pi^+ \pi^- \pi^0$
1311.3± 1.6±3.0	72.4k	AMELIN	96	VES		36 $\pi^- p \to \pi^+ \pi^- \pi^0 n$
1310 ± 5		ARMSTRONG	90	OMEG	0	300.0$p p \to p p \pi^+ \pi^- \pi^0$
1323.8± 2.3	4022	AUGUSTIN	89	DM2	±	$J/\psi \to \rho^\pm a_2^\mp$
1320.6± 3.1	3562	AUGUSTIN	89	DM2	0	$J/\psi \to \rho^0 a_2^0$
1317 ± 2	25k	[1] DAUM	80C	SPEC	−	63,94 $\pi^- p \to 3\pi p$
1320 ±10	1097	[1] BALTAY	78B	HBC	+0	15 $\pi^+ p \to p 4\pi$
1306 ± 8		FERRERSORIA	78	OMEG	−	9 $\pi^- p \to p 3\pi$
1318 ± 7	1.6k	[1] EMMS	75	DBC	0	4 $\pi^+ n \to p (3\pi)^0$
1315 ± 5		[1] ANTIPOV	73C	CNTR	−	25,40 $\pi^- p \to p \eta \pi^-$
1306 ± 9	1580	CHALOUPKA	73	HBC	−	3.9 $\pi^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
1300 ± 2 ±4	18k	[2] SCHEGELSKY	06	RVUE	0	$\gamma\gamma \to \pi^+ \pi^- \pi^0$
1305 ±14		CONDO	93	SHF		$\gamma p \to \eta \pi^+ \pi^+ \pi^-$
1310 ± 2		[1] EVANGELIS...	81	OMEG	−	12 $\pi^- p \to 3\pi p$
1343 ±11	490	BALTAY	78B	HBC	0	15 $\pi^+ p \to \Delta 3\pi$
1309 ± 5	5k	BINNIE	71	MMS	−	$\pi^- p$ near a_2 threshold
1299 ± 6	28k	BOWEN	71	MMS	−	5 $\pi^- p$
1300 ± 6	24k	BOWEN	71	MMS	+	5 $\pi^+ p$
1309 ± 4	17k	BOWEN	71	MMS	−	7 $\pi^- p$
1306 ± 4	941	ALSTON-...	70	HBC	+	7.0 $\pi^+ p \to 3\pi p$

[1] From a fit to $J^P = 2^+$ $\rho\pi$ partial wave.
[2] From analysis of L3 data at 183–209 GeV.



$K\overline{K}$ MODE

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
The data in this block is included in the average printed for a previous datablock.						
1318.1± 0.7 OUR AVERAGE						
1319 ± 5	4700	[3,4] CLELAND	82B	SPEC	+	50 $\pi^+ p \to K^0_S K^+ p$
1324 ± 6	5200	[3,4] CLELAND	82B	SPEC	−	50 $\pi^- p \to K^0_S K^- p$
1320 ± 2	4000	CHABAUD	80	SPEC	−	17 π^- A $\to K^0_S K^-$ A
1312 ± 4	11000	CHABAUD	78	SPEC	−	9.8 $\pi^- p \to K^- K^0_S p$
1316 ± 2	4730	CHABAUD	78	SPEC	−	18.8 $\pi^- p \to K^- K^0_S p$
1318 ± 1		[3,5] MARTIN	78D	SPEC	−	10 $\pi^- p \to K^0_S K^- p$
1320 ± 2	2724	MARGULIE	76	SPEC	−	23 $\pi^- p \to K^- K^0_S p$
1313 ± 4	730	FOLEY	72	CNTR	−	20.3 $\pi^- p \to K^- K^0_S p$
1319 ± 3	1500	[5] GRAYER	71	ASPK	−	17.2 $\pi^- p \to K^- K^0_S p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
1304 ±10	870	[6] SCHEGELSKY	06A	RVUE	0	$\gamma\gamma \to K^0_S K^0_S$
1330 ±11	1000	[3,4] CLELAND	82B	SPEC	+	30 $\pi^+ p \to K^0_S K^+ p$
1324 ± 5	350	HYAMS	78	ASPK	+	12.7 $\pi^+ p \to K^+ K^0_S p$

[3] From a fit to $J^P = 2^+$ partial wave.
[4] Number of events evaluated by us.
[5] Systematic error in mass scale subtracted.
[6] From analysis of L3 data at 91 and 183–209 GeV.

$\eta\pi$ MODE

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
The data in this block is included in the average printed for a previous datablock.						
1317.7±1.4 OUR AVERAGE						
1308 ±9		BARBERIS	00H			450 $pp \to p_f \eta \pi^0 p_s$
1316 ±9		BARBERIS	00H			450 $pp \to \Delta_f^{++} \eta \pi^- p_s$
1317 ±1 ±2		THOMPSON	97	MPS		18 $\pi^- p \to \eta \pi^- p$
1315 ±5 ±2		[7] AMSLER	94D	CBAR		0.0 $\overline{p} p \to \pi^0 \pi^0 \eta$
1325.1±5.1		AOYAGI	93	BKEI		$\pi^- p \to \eta \pi^- p$
1317.7±1.4±2.0		BELADIDZE	93	VES		$37\pi^- N \to \eta \pi^- N$
1323 ±8	1000	[8] KEY	73	OSPK	−	6 $\pi^- p \to p \pi^- \eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
1324 ±5		ARMSTRONG	93C	E760	0	$\overline{p} p \to \pi^0 \eta \eta \to 6\gamma$
1336.2±1.7	2561	DELFOSSE	81	SPEC	+	$\pi^\pm p \to p \pi^\pm \eta$
1330.7±2.4	1653	DELFOSSE	81	SPEC	−	$\pi^\pm p \to p \pi^\pm \eta$
1324 ±8	6200	[8,9] CONFORTO	73	OSPK	−	6 $\pi^- p \to p \mathrm{MM}^-$

[7] The systematic error of 2 MeV corresponds to the spread of solutions.
[8] Error includes 5 MeV systematic mass-scale error.
[9] Missing mass with enriched MMS $= \eta\pi^-$, $\eta = 2\gamma$.

$\eta'\pi$ MODE

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
The data in this block is included in the average printed for a previous datablock.				
1322 ± 7 OUR AVERAGE				
1318 ± 8 $^{+3}_{-5}$	IVANOV	01	B852	18 $\pi^- p \to \eta' \pi^- p$
1327.0±10.7	BELADIDZE	93	VES	$37\pi^- N \to \eta' \pi^- N$

$a_2(1320)$ WIDTH

3π MODE

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
104.7± 1.9 OUR AVERAGE						
108 ± 3 ±15		CHUNG	02	B852		18.3 $\pi^- p \to \pi^+ \pi^- \pi^- p$
120 ±10		BARBERIS	98B			450 $pp \to p_f \pi^+ \pi^- \pi^0 p_s$
105 ±10 ±11		ACCIARRI	97T	L3		$e^+ e^- \to e^+ e^- \pi^+ \pi^- \pi^0$
120 ±10		ALBRECHT	97B	ARG		$e^+ e^- \to e^+ e^- \pi^+ \pi^- \pi^0$
103.0± 6.0± 3.3	72.4k	AMELIN	96	VES		36 $\pi^- p \to \pi^+ \pi^- \pi^0 n$
120 ±10		ARMSTRONG	90	OMEG	0	300.0$pp \to pp\pi^+ \pi^- \pi^0$
107.0± 9.7	4022	AUGUSTIN	89	DM2	±	$J/\psi \to \rho^\pm a_2^\mp$
118.5±12.5	3562	AUGUSTIN	89	DM2	0	$J/\psi \to \rho^0 a_2^0$
97 ± 5		[10] EVANGELIS...	81	OMEG	−	12 $\pi^- p \to 3\pi p$

96	± 9		25k	[10] DAUM	80C	SPEC	−	63,94 $\pi^- p \to 3\pi p$
110	±15		1097	[10] BALTAY	78B	HBC	+0	15 $\pi^+ p \to p 4\pi$
112	±18		1.6k	[10] EMMS	75	DBC	0	4 $\pi^+ n \to p(3\pi)^0$
122	±14		1.2k	[10,11] WAGNER	75	HBC	0	7 $\pi^+ p \to \Delta^{++}(3\pi)^0$
115	±15			[10] ANTIPOV	73C	CNTR	−	25,40 $\pi^- p \to p\eta\pi^-$
99	±15		1580	CHALOUPKA	73	HBC	−	3.9 $\pi^- p$
105	± 5		28k	BOWEN	71	MMS	−	5 $\pi^- p$
99	± 5		24k	BOWEN	71	MMS	+	5 $\pi^+ p$
103	± 5		17k	BOWEN	71	MMS	−	7 $\pi^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •								
117	± 6	±20	18k	[12] SCHEGELSKY	06	RVUE	0	$\gamma\gamma \to \pi^+\pi^-\pi^0$
120	±40			CONDO	93	SHF		$\gamma p \to \eta\pi^+\pi^+\pi^-$
115	±14		490	BALTAY	78B	HBC	0	15 $\pi^+ p \to \Delta 3\pi$
72	±16		5k	BINNIE	71	MMS	−	$\pi^- p$ near a_2 threshold
79	±12		941	ALSTON-...	70	HBC	+	7.0 $\pi^+ p \to 3\pi p$

[10] From a fit to $J^P = 2^+$ $\rho\pi$ partial wave.
[11] Width errors enlarged by us to $4\Gamma/\sqrt{N}$; see the note with the $K^*(892)$ mass.
[12] From analysis of L3 data at 183–209 GeV.

$K\overline{K}$ AND $\eta\pi$ MODES

VALUE (MeV)	DOCUMENT ID
107 ±5 OUR ESTIMATE	
110.4±1.7 OUR AVERAGE Includes data from the 2 datablocks that follow this one.	

$K\overline{K}$ MODE

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
The data in this block is included in the average printed for a previous datablock.						
109.8± 2.4 OUR AVERAGE						
112 ±20	4700	[13,14] CLELAND	82B	SPEC	+	50 $\pi^+ p \to K^0_S K^+ p$
120 ±25	5200	[13,14] CLELAND	82B	SPEC	−	50 $\pi^- p \to K^0_S K^- p$
106 ± 4	4000	CHABAUD	80	SPEC	−	17 $\pi^- A \to K^0_S K^- A$
126 ±11	11000	CHABAUD	78	SPEC	−	9.8 $\pi^- p \to K^- K^0_S p$
101 ± 8	4730	CHABAUD	78	SPEC	−	18.8 $\pi^- p \to K^- K^0_S p$
113 ± 4		[13,15] MARTIN	78D	SPEC	−	10 $\pi^- p \to K^0_S K^- p$
105 ± 8	2724	[15] MARGULIE	76	SPEC	−	23 $\pi^- p \to K^- K^0_S p$
113 ±19	730	FOLEY	72	CNTR	−	20.3 $\pi^- p \to K^- K^0_S p$
123 ±13	1500	[15] GRAYER	71	ASPK	−	17.2 $\pi^- p \to K^- K^0_S p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
120 ±15	870	[16] SCHEGELSKY	06A	RVUE	0	$\gamma\gamma \to K^0_S K^0_S$
121 ±51	1000	[13,14] CLELAND	82B	SPEC	+	30 $\pi^+ p \to K^0_S K^+ p$
110 ±18	350	HYAMS	78	ASPK	+	12.7 $\pi^+ p \to K^+ K^0_S p$

[13] From a fit to $J^P = 2^+$ partial wave.
[14] Number of events evaluated by us.
[15] Width errors enlarged by us to $4\Gamma/\sqrt{N}$; see the note with the $K^*(892)$ mass.
[16] From analysis of L3 data at 91 and 183–209 GeV.

$\eta\pi$ MODE

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
The data in this block is included in the average printed for a previous datablock.						
111.1± 2.4 OUR AVERAGE						
115 ±20		BARBERIS	00H			450 $pp \to p_f \eta \pi^0 p_s$
112 ±14		BARBERIS	00H			450 $pp \to \Delta_f^{++} \eta \pi^- p_s$
112 ± 3 ±2		[17] AMSLER	94D	CBAR		0.0 $\overline{p}p \to \pi^0 \pi^0 \eta$
103 ± 6 ±3		BELADIDZE	93	VES		37$\pi^- N \to \eta \pi^- N$
112.2± 5.7	2561	DELFOSSE	81	SPEC	+	$\pi^\pm p \to p \pi^\pm \eta$
116.6± 7.7	1653	DELFOSSE	81	SPEC	−	$\pi^\pm p \to p \pi^\pm \eta$
108 ± 9	1000	KEY	73	OSPK	−	6 $\pi^- p \to p \pi^- \eta$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
127 ± 2 ±2		[18] THOMPSON	97	MPS		18 $\pi^- p \to \eta \pi^- p$
118 ±10		ARMSTRONG	93C	E760	0	$\overline{p}p \to \pi^0 \eta \eta \to 6\gamma$
104 ± 9	6200	[19] CONFORTO	73	OSPK	−	6 $\pi^- p \to p$MM$^-$

[17] The systematic error of 2 MeV corresponds to the spread of solutions.
[18] Resolution is not unfolded.
[19] Missing mass with enriched MMS = $\eta\pi^-$, $\eta = 2\gamma$.

$\eta'\pi$ MODE

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
119±25 OUR AVERAGE				
140±35±20	IVANOV	01	B852	18 $\pi^- p \to \eta' \pi^- p$
106±32	BELADIDZE	93	VES	37$\pi^- N \to \eta' \pi^- N$

$a_2(1320)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)	Scale factor/ Confidence level
Γ_1	3π	(70.1 ±2.7) %	S=1.2
Γ_2	$\rho(770)\pi$		
Γ_3	$f_2(1270)\pi$		
Γ_4	$\rho(1450)\pi$		
Γ_5	$\eta\pi$	(14.5 ±1.2) %	
Γ_6	$\omega\pi\pi$	(10.6 ±3.2) %	S=1.3
Γ_7	$K\overline{K}$	(4.9 ±0.8) %	
Γ_8	$\eta'(958)\pi$	(5.3 ±0.9) $\times 10^{-3}$	
Γ_9	$\pi^\pm\gamma$	(2.68±0.31) $\times 10^{-3}$	
Γ_{10}	$\gamma\gamma$	(9.4 ±0.7) $\times 10^{-6}$	
Γ_{11}	e^+e^-	$<$ 6 $\times 10^{-9}$	CL=90%

CONSTRAINED FIT INFORMATION

An overall fit to 5 branching ratios uses 18 measurements and one constraint to determine 4 parameters. The overall fit has a $\chi^2 =$ 9.3 for 15 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients $\langle \delta x_i \delta x_j \rangle / (\delta x_i \cdot \delta x_j)$, in percent, from the fit to the branching fractions, $x_i \equiv \Gamma_i/\Gamma_{\rm total}$. The fit constrains the x_i whose labels appear in this array to sum to one.

x_5	10		
x_6	−89	−46	
x_7	−1	−2	−24
	x_1	x_5	x_6

$a_2(1320)$ PARTIAL WIDTHS

$\Gamma(\eta\pi)$ — Γ_5

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •						
18.5±3.0	870	[20] SCHEGELSKY	06A	RVUE	0	$\gamma\gamma \to K^0_S K^0_S$

[20] From analysis of L3 data at 91 and 183–209 GeV, using $\Gamma(a_2(1320) \to \gamma\gamma) = 0.91$ keV and SU(3) relations.

$\Gamma(K\overline{K})$ — Γ_7

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$7.0^{+2.0}_{-1.5}$	870	[21] SCHEGELSKY	06A	RVUE	0	$\gamma\gamma \to K^0_S K^0_S$

[21] From analysis of L3 data at 91 and 183–209 GeV, using $\Gamma(a_2(1320) \to \gamma\gamma) = 0.91$ keV and SU(3) relations.

$\Gamma(\pi^\pm\gamma)$ — Γ_9

VALUE (keV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
287± 30 OUR AVERAGE						
284± 25±25	7100	MOLCHANOV	01	SELX		600 $\pi^- A \to \pi^+\pi^-\pi^- A$
295± 60		CIHANGIR	82	SPEC	+	200 π^+A
• • • We do not use the following data for averages, fits, limits, etc. • • •						
461±110		[22] MAY	77	SPEC	±	9.7 γA

[22] Assuming one-pion exchange.

$\Gamma(\gamma\gamma)$ — Γ_{10}

VALUE (keV)	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
1.00±0.06 OUR AVERAGE						
0.98±0.05±0.09		ACCIARRI	97T	L3		$e^+e^- \to e^+e^-\pi^+\pi^-\pi^0$
0.96±0.03±0.13		ALBRECHT	97B	ARG		$e^+e^- \to e^+e^-\pi^+\pi^-\pi^0$
1.26±0.26±0.18	36	BARU	90	MD1		$e^+e^- \to e^+e^-\pi^+\pi^-\pi^0$
1.00±0.07±0.15	415	BEHREND	90C	CELL	0	$e^+e^- \to e^+e^-\pi^+\pi^-\pi^0$
1.03±0.13±0.21		BUTLER	90	MRK2		$e^+e^- \to e^+e^-\pi^+\pi^-\pi^0$
1.01±0.14±0.22	85	OEST	90	JADE		$e^+e^- \to e^+e^-\pi^0\eta$
0.90±0.27±0.15	56	[23] ALTHOFF	86	TASS	0	$e^+e^- \to e^+e^-3\pi$
1.14±0.20±0.26		[24] ANTREASYAN	86	CBAL	0	$e^+e^- \to e^+e^-\pi^0\eta$
1.06±0.18±0.19		BERGER	84C	PLUT	0	$e^+e^- \to e^+e^-3\pi$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$0.81\pm0.19^{+0.42}_{-0.11}$	35	[23] BEHREND	83B	CELL	0	$e^+e^- \to e^+e^-3\pi$
0.77±0.18±0.27	22	[24] EDWARDS	82F	CBAL	0	$e^+e^- \to e^+e^-\pi^0\eta$

[23] From $\rho\pi$ decay mode.
[24] From $\eta\pi^0$ decay mode.

$\Gamma(e^+e^-)$ — Γ_{11}

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
< 0.56	90	ACHASOV	00K	SND	$e^+e^- \to \pi^0\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<25	90	VOROBYEV	88	ND	$e^+e^- \to \pi^0\eta$

$a_2(1320)$ $\Gamma(i)\Gamma(\gamma\gamma)/\Gamma(\text{total})$

$\Gamma(3\pi) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ — $\Gamma_1\Gamma_{10}/\Gamma$

VALUE (keV)	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.65±0.02±0.02	18k	[25] SCHEGELSKY	06	RVUE	$\gamma\gamma \to \pi^+\pi^-\pi^0$

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

$\Gamma(K\overline{K}) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ — $\Gamma_7\Gamma_{10}/\Gamma$

VALUE (keV)	DOCUMENT ID		TECN	COMMENT
0.126±0.007±0.028	[26] ALBRECHT	90G	ARG	$e^+e^- \to e^+e^-K^+K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.081±0.006±0.027	[27] ALBRECHT	90G	ARG	$e^+e^- \to e^+e^-K^+K^-$

[26] Using an incoherent background.
[27] Using a coherent background.

$a_2(1320)$ BRANCHING RATIOS

$[\Gamma(f_2(1270)\pi) + \Gamma(\rho(1450)\pi)]/\Gamma(\rho(770)\pi)$ — $(\Gamma_3+\Gamma_4)/\Gamma_2$

VALUE	CL%	DOCUMENT ID		TECN	CHG	COMMENT
<0.12	90	ABRAMOVI...	70B	HBC	−	3.93 $\pi^- p$

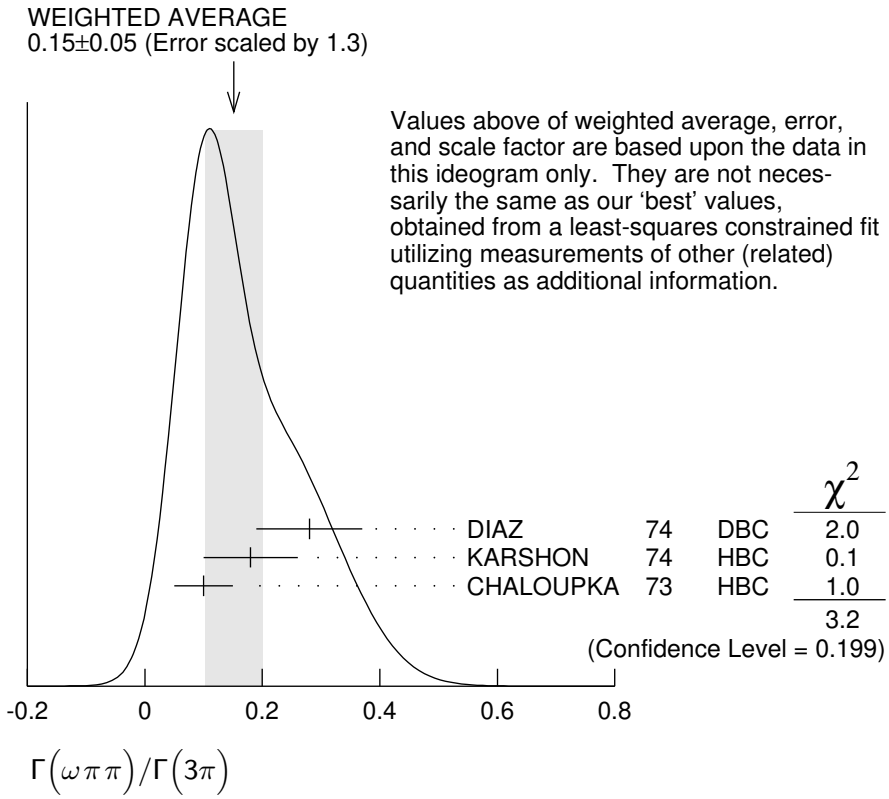
$\Gamma(\eta\pi)/\Gamma(3\pi)$ — Γ_5/Γ_1

VALUE	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
0.207±0.018 OUR FIT						
0.213±0.020 OUR AVERAGE						
0.18 ±0.05		FORINO	76	HBC		11 $\pi^- p$
0.22 ±0.05	52	ANTIPOV	73	CNTR	−	40 $\pi^- p$
0.211±0.044	149	CHALOUPKA	73	HBC	−	3.9 $\pi^- p$
0.246±0.042	167	ALSTON-...	71	HBC	+	7.0 $\pi^+ p$
0.25 ±0.09	15	BOECKMANN	70	HBC	+	5.0 $\pi^+ p$
0.23 ±0.08	22	ASCOLI	68	HBC	−	5 $\pi^- p$
0.12 ±0.08		CHUNG	68	HBC	−	3.2 $\pi^- p$
0.22 ±0.09		CONTE	67	HBC	−	11.0 $\pi^- p$

$\Gamma(\omega\pi\pi)/\Gamma(3\pi)$ — Γ_6/Γ_1

VALUE	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
0.15±0.05 OUR FIT Error includes scale factor of 1.3.						
0.15±0.05 OUR AVERAGE Error includes scale factor of 1.3. See the ideogram below.						
0.28±0.09	60	DIAZ	74	DBC	0	6 $\pi^+ n$
0.18±0.08		[28] KARSHON	74	HBC		Avg. of above two
0.10±0.05	279	CHALOUPKA	73	HBC	−	3.9 $\pi^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
0.29±0.08	140	[28] KARSHON	74	HBC	0	4.9 $\pi^+ p$
0.10±0.04	60	[28] KARSHON	74	HBC	+	4.9 $\pi^+ p$
0.19±0.08		DEFOIX	73	HBC	0	0.7 $\overline{p}p$

[28] KARSHON 74 suggest an additional $I = 0$ state strongly coupled to $\omega\pi\pi$ which could explain discrepancies in branching ratios and masses. We use a central value and a systematic spread.



$\Gamma(K\overline{K})/\Gamma(3\pi)$ — Γ_7/Γ_1

VALUE	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
0.070±0.012 OUR FIT						
0.078±0.017		CHABAUD	78	RVUE		
• • • We do not use the following data for averages, fits, limits, etc. • • •						
0.011±0.003		[29] BERTIN	98B	OBLX		0.0 $\overline{p}p \rightarrow K^{\pm} K_S \pi^{\mp}$
0.056±0.014	50	[30] CHALOUPKA	73	HBC	−	3.9 $\pi^- p$
0.097±0.018	113	[30] ALSTON-...	71	HBC	+	7.0 $\pi^+ p$
0.06 ±0.03		[30] ABRAMOVI...	70B	HBC	−	3.93 $\pi^- p$
0.054±0.022		[30] CHUNG	68	HBC	−	3.2 $\pi^- p$

[29] Using 4π data from BERTIN 97D.
[30] Included in CHABAUD 78 review.

$\Gamma(K\overline{K})/\Gamma(\eta\pi)$ — Γ_7/Γ_5

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.08±0.02	[31] BERTIN	98B	OBLX	0.0 $\overline{p}p \rightarrow K^{\pm} K_S \pi^{\mp}$

[31] Using $\eta\pi\pi$ data from AMSLER 94D.

$\Gamma(\eta\pi)/[\Gamma(3\pi)+\Gamma(\eta\pi)+\Gamma(K\overline{K})]$ — $\Gamma_5/(\Gamma_1+\Gamma_5+\Gamma_7)$

VALUE	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
0.162±0.012 OUR FIT						
0.140±0.028 OUR AVERAGE						
0.13 ±0.04		ESPIGAT	72	HBC	±	0.0 $\overline{p}p$
0.15 ±0.04	34	BARNHAM	71	HBC	+	3.7 $\pi^+ p$

$\Gamma(K\overline{K})/[\Gamma(3\pi)+\Gamma(\eta\pi)+\Gamma(K\overline{K})]$ — $\Gamma_7/(\Gamma_1+\Gamma_5+\Gamma_7)$

VALUE	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
0.054±0.009 OUR FIT						
0.048±0.012 OUR AVERAGE						
0.05 ±0.02		TOET	73	HBC	+	5 $\pi^+ p$
0.09 ±0.04		TOET	73	HBC	0	5 $\pi^+ p$
0.03 ±0.02	8	DAMERI	72	HBC	−	11 $\pi^- p$
0.06 ±0.03	17	BARNHAM	71	HBC	+	3.7 $\pi^+ p$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
0.020±0.004		[32] ESPIGAT	72	HBC	±	0.0 $\overline{p}p$

[32] Not averaged because of discrepancy between masses from $K\overline{K}$ and $\rho\pi$ modes.

$\Gamma(\eta'(958)\pi)/\Gamma_{total}$ — Γ_8/Γ

VALUE	CL%	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.006	95	ALDE	92B	GAM2		38,100 $\pi^- p \to \eta' \pi^0 n$
<0.02	97	BARNHAM	71	HBC	+	3.7 $\pi^+ p$
0.004±0.004		BOESEBECK	68	HBC	+	8 $\pi^+ p$

$\Gamma(\eta'(958)\pi)/\Gamma(3\pi)$ — Γ_8/Γ_1

VALUE	CL%	DOCUMENT ID		TECN	CHG	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<0.011	90	EISENSTEIN	73	HBC	−	5 $\pi^- p$
<0.04		ALSTON-...	71	HBC	+	7.0 $\pi^+ p$
$0.04\ ^{+0.03}_{-0.04}$		BOECKMANN	70	HBC	0	5.0 $\pi^+ p$

$\Gamma(\eta'(958)\pi)/\Gamma(\eta\pi)$ — Γ_8/Γ_5

VALUE	DOCUMENT ID		TECN	COMMENT
0.037±0.006 OUR AVERAGE				
0.032±0.009	ABELE	97C	CBAR	0.0 $\overline{p}p \to \pi^0\pi^0\eta'$
0.047±0.010±0.004	[33] BELADIDZE	93	VES	$37\pi^- N \to a_2^- N$
0.034±0.008±0.005	BELADIDZE	92	VES	$36\pi^-$ C $\to a_2^-$ C

[33] Using $B(\eta' \to \pi^+\pi^-\eta) = 0.441$, $B(\eta \to \gamma\gamma) = 0.389$ and $B(\eta \to \pi^+\pi^-\pi^0) = 0.236$.

$\Gamma(\pi^\pm\gamma)/\Gamma_{total}$ — Γ_9/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.005\ ^{+0.005}_{-0.003}$	[34] EISENBERG	72	HBC	4.3,5.25,7.5 γp

[34] Pion-exchange model used in this estimation.

$\Gamma(e^+e^-)/\Gamma_{total}$ — Γ_{11}/Γ

VALUE (units 10^{-9})	CL%	DOCUMENT ID		TECN	COMMENT
<6	90	ACHASOV	00K	SND	$e^+e^- \to \pi^0\pi^0$

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AMELIN	96	ZPHY C70 71	D.V. Amelin *et al.*	(SERP, TBIL)
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ANTREASYAN	86	PR D33 1847	D. Antreasyan *et al.*	(Crystal Ball Collab.)
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