

$a_2(1320)$

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

 $a_2(1320)$ MASSVALUE (MeV)DOCUMENT ID

$1318.3^{+0.5}_{-0.6}$ OUR AVERAGE Includes data from the 4 datablocks that follow this one.
Error includes scale factor of 1.2.

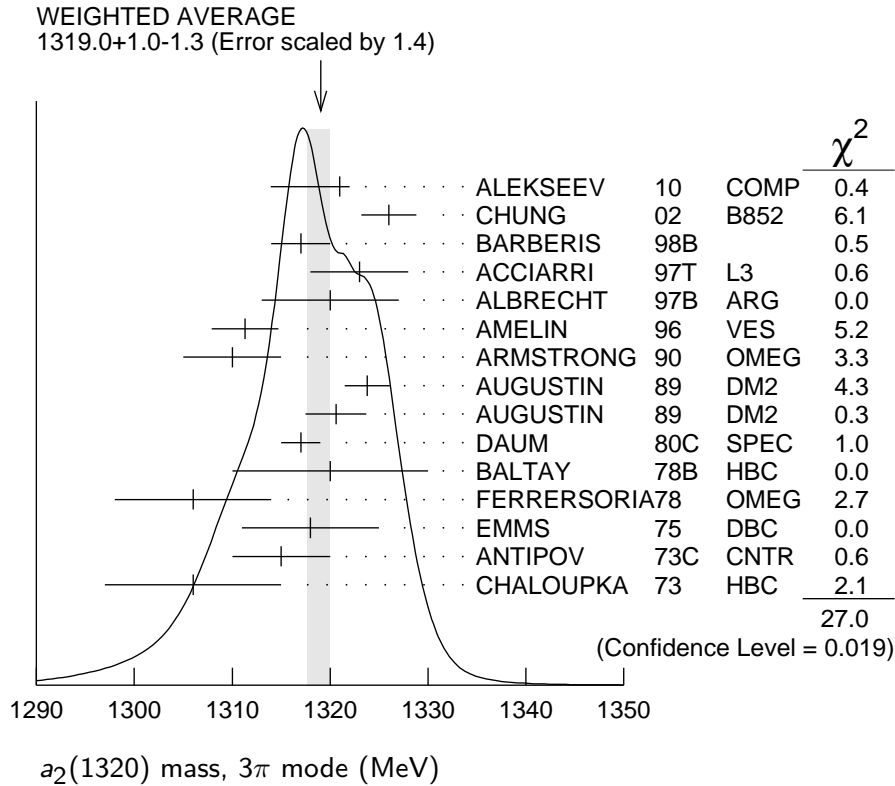
3 π MODEVALUE (MeV)EVTSDOCUMENT IDTECNCHGCOMMENT

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

$1319.0^{+1.0}_{-1.3}$ OUR AVERAGE Error includes scale factor of 1.4. See the ideogram below.

1321	± 1	$^{+0}_{-7}$	420k	ALEKSEEV	10	COMP	190 $\pi^- Pb \rightarrow \pi^- \pi^- \pi^+ Pb'$
1326	± 2	± 2		CHUNG	02	B852	18.3 $\pi^- p \rightarrow \pi^+ \pi^- \pi^- p$
1317	± 3			BARBERIS	98B		450 $pp \rightarrow p_f \pi^+ \pi^- \pi^0 p_s$
1323	± 4	± 3		ACCIARRI	97T	L3	$e^+ e^- \rightarrow e^+ e^- \pi^+ \pi^- \pi^0$
1320	± 7			ALBRECHT	97B	ARG	$e^+ e^- \rightarrow e^+ e^- \pi^+ \pi^- \pi^0$
1311.3	± 1.6	± 3.0	72.4k	AMELIN	96	VES	36 $\pi^- p \rightarrow \pi^+ \pi^- \pi^0 n$
1310	± 5			ARMSTRONG	90	OMEG 0	300.0 $pp \rightarrow pp \pi^+ \pi^- \pi^0$
1323.8	± 2.3		4022	AUGUSTIN	89	DM2 \pm	$J/\psi \rightarrow \rho^\pm a_2^\mp$
1320.6	± 3.1		3562	AUGUSTIN	89	DM2 0	$J/\psi \rightarrow \rho^0 a_2^0$
1317	± 2		25k	¹ DAUM	80C	SPEC -	63,94 $\pi^- p \rightarrow 3\pi p$
1320	± 10		1097	¹ BALTAY	78B	HBC +0	15 $\pi^+ p \rightarrow p 4\pi$
1306	± 8			FERRERSORIA	78	OMEG -	9 $\pi^- p \rightarrow p 3\pi$
1318	± 7		1.6k	¹ EMMS	75	DBC 0	4 $\pi^+ n \rightarrow p(3\pi)^0$
1315	± 5			¹ ANTIPOV	73C	CNTR -	25,40 $\pi^- p \rightarrow p \eta \pi^-$
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	$\gamma\gamma \rightarrow \pi^+ \pi^- \pi^0$
1305	± 14			CONDO	93	SHF	$\gamma p \rightarrow n \pi^+ \pi^+ \pi^-$
1310	± 2			¹ EVANGELIS...	81	OMEG -	12 $\pi^- p \rightarrow 3\pi p$
1343	± 11		490	BALTAY	78B	HBC 0	15 $\pi^+ p \rightarrow \Delta 3\pi$
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 $\pi^+ p \rightarrow 3\pi p$

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



$K\bar{K}$ 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 $\pi^+ p \rightarrow K_S^0 K^+ p$
1324 ± 6	5200	^{3,4} CLELAND	82B	SPEC	-	50 $\pi^- p \rightarrow K_S^0 K^- p$
1320 ± 2	4000	CHABAUD	80	SPEC	-	17 $\pi^- A \rightarrow K_S^0 K^- A$
1312 ± 4	11000	CHABAUD	78	SPEC	-	9.8 $\pi^- p \rightarrow K^- K_S^0 p$
1316 ± 2	4730	CHABAUD	78	SPEC	-	18.8 $\pi^- p \rightarrow K^- K_S^0 p$
1318 ± 1		^{3,5} MARTIN	78D	SPEC	-	10 $\pi^- p \rightarrow K_S^0 K^- p$
1320 ± 2	2724	MARGULIE	76	SPEC	-	23 $\pi^- p \rightarrow K^- K_S^0 p$
1313 ± 4	730	FOLEY	72	CNTR	-	20.3 $\pi^- p \rightarrow K^- K_S^0 p$
1319 ± 3	1500	⁵ GRAYER	71	ASPK	-	17.2 $\pi^- p \rightarrow K^- K_S^0 p$

• • • We do not use the following data for averages, fits, limits, etc. • • •

1304 ± 10	870	⁶ SCHEGELSKY	06A	RVUE	0	$\gamma\gamma \rightarrow K_S^0 K_S^0$
1330 ± 11	1000	^{3,4} CLELAND	82B	SPEC	+	30 $\pi^+ p \rightarrow K_S^0 K^+ p$
1324 ± 5	350	HYAMS	78	ASPK	+	12.7 $\pi^+ p \rightarrow K^+ K_S^0 p$

- 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
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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 $p p \rightarrow p_f \eta \pi^0 p_s$
1316 ± 9		BARBERIS	00H		450 $p p \rightarrow \Delta_f^{++} \eta \pi^- p_s$
1317 ± 1 ± 2		THOMPSON	97	MPS	18 $\pi^- p \rightarrow \eta \pi^- p$
1315 ± 5 ± 2		⁷ AMSLER	94D	CBAR	0.0 $\bar{p} p \rightarrow \pi^0 \pi^0 \eta$
1325.1 ± 5.1		AOYAGI	93	BKEI	$\pi^- p \rightarrow \eta \pi^- p$
1317.7 ± 1.4 ± 2.0		BELADIDZE	93	VES	37 $\pi^- N \rightarrow \eta \pi^- N$
1323 ± 8	1000	⁸ KEY	73	OSPK	– 6 $\pi^- p \rightarrow p \pi^- \eta$

• • • We do not use the following data for averages, fits, limits, etc. • • •

1309 ± 4		ANISOVICH	09	RVUE	$\bar{p} p, \pi N$
1324 ± 5		ARMSTRONG	93C	E760	0 $\bar{p} p \rightarrow \pi^0 \eta \eta \rightarrow 6\gamma$
1336.2 ± 1.7	2561	DELFOSSÉ	81	SPEC	+ $\pi^\pm p \rightarrow p \pi^\pm \eta$
1330.7 ± 2.4	1653	DELFOSSÉ	81	SPEC	– $\pi^\pm p \rightarrow p \pi^\pm \eta$
1324 ± 8	6200	^{8,9} CONFORTO	73	OSPK	– 6 $\pi^- p \rightarrow p \pi^- \eta$

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

1322 ± 7 OUR AVERAGE

1318 ± 8 $\begin{smallmatrix} +3 \\ -5 \end{smallmatrix}$		IVANOV	01	B852	18 $\pi^- p \rightarrow \eta' \pi^- p$
1327.0 ± 10.7		BELADIDZE	93	VES	37 $\pi^- N \rightarrow \eta' \pi^- N$

$a_2(1320)$ WIDTH

3 π MODE

VALUE (MeV)	EVTs	DOCUMENT ID	TECN	CHG	COMMENT
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105.0 $\begin{smallmatrix} + \\ - \end{smallmatrix}$ $\begin{smallmatrix} 1.6 \\ 1.9 \end{smallmatrix}$ OUR AVERAGE

110 ± 2 $\begin{smallmatrix} +2 \\ -15 \end{smallmatrix}$	420k	ALEKSEEV	10	COMP	190 $\pi^- Pb \rightarrow \pi^- \pi^- \pi^+ Pb'$
108 ± 3 ± 15		CHUNG	02	B852	18.3 $\pi^- p \rightarrow \pi^+ \pi^- \pi^- p$
120 ± 10		BARBERIS	98B		450 $p p \rightarrow p_f \pi^+ \pi^- \pi^0 p_s$
105 ± 10 ± 11		ACCIARRI	97T	L3	$e^+ e^- \rightarrow e^+ e^- \pi^+ \pi^- \pi^0$
120 ± 10		ALBRECHT	97B	ARG	$e^+ e^- \rightarrow e^+ e^- \pi^+ \pi^- \pi^0$
103.0 ± 6.0 ± 3.3	72.4k	AMELIN	96	VES	36 $\pi^- p \rightarrow \pi^+ \pi^- \pi^0 n$
120 ± 10		ARMSTRONG	90	OMEG 0	300.0 $p p \rightarrow p p \pi^+ \pi^- \pi^0$

107.0 ± 9.7	4022	AUGUSTIN	89	DM2	±	$J/\psi \rightarrow \rho^\pm a_2^\mp$
118.5 ± 12.5	3562	AUGUSTIN	89	DM2	0	$J/\psi \rightarrow \rho^0 a_2^0$
97 ± 5		¹⁰ EVANGELIS...	81	OMEG	−	$12 \pi^- p \rightarrow 3\pi p$
96 ± 9	25k	¹⁰ DAUM	80C	SPEC	−	$63,94 \pi^- p \rightarrow 3\pi p$
110 ± 15	1097	¹⁰ BALTAY	78B	HBC	+0	$15 \pi^+ p \rightarrow p 4\pi$
112 ± 18	1.6k	¹⁰ EMMS	75	DBC	0	$4 \pi^+ n \rightarrow p(3\pi)^0$
122 ± 14	1.2k	^{10,11} WAGNER	75	HBC	0	$7 \pi^+ p \rightarrow \Delta^{++}(3\pi)^0$
115 ± 15		¹⁰ ANTIPOV	73C	CNTR	−	$25,40 \pi^- p \rightarrow p\eta\pi^-$
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	$\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$
120 ± 40		CONDO	93	SHF		$\gamma p \rightarrow n\pi^+\pi^+\pi^-$
115 ± 14	490	BALTAY	78B	HBC	0	$15 \pi^+ p \rightarrow \Delta 3\pi$
72 ± 16	5k	BINNIE	71	MMS	−	$\pi^- p$ near a_2 threshold
79 ± 12	941	ALSTON-...	70	HBC	+	$7.0 \pi^+ p \rightarrow 3\pi p$

¹⁰From a fit to $J^P = 2^+ \rho\pi$ partial wave.

¹¹Width errors enlarged by us to $4\Gamma/\sqrt{N}$; see the note with the $K^*(892)$ mass.

¹²From analysis of L3 data at 183–209 GeV.

$K\bar{K}$ 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.

$K\bar{K}$ 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	+	$50 \pi^+ p \rightarrow K_S^0 K^+ p$
120 ± 25	5200	^{13,14} CLELAND	82B	SPEC	−	$50 \pi^- p \rightarrow K_S^0 K^- p$
106 ± 4	4000	CHABAUD	80	SPEC	−	$17 \pi^- A \rightarrow K_S^0 K^- A$
126 ± 11	11000	CHABAUD	78	SPEC	−	$9.8 \pi^- p \rightarrow K^- K_S^0 p$
101 ± 8	4730	CHABAUD	78	SPEC	−	$18.8 \pi^- p \rightarrow K^- K_S^0 p$
113 ± 4		^{13,15} MARTIN	78D	SPEC	−	$10 \pi^- p \rightarrow K_S^0 K^- p$
105 ± 8	2724	¹⁵ MARGULIE	76	SPEC	−	$23 \pi^- p \rightarrow K^- K_S^0 p$
113 ± 19	730	FOLEY	72	CNTR	−	$20.3 \pi^- p \rightarrow K^- K_S^0 p$
123 ± 13	1500	¹⁵ GRAYER	71	ASPK	−	$17.2 \pi^- p \rightarrow K^- K_S^0 p$

• • • We do not use the following data for averages, fits, limits, etc. • • •

120 ± 15	870	¹⁶ SCHEGELSKY	06A	RVUE	0	$\gamma\gamma \rightarrow K_S^0 K_S^0$
121 ± 51	1000	^{13,14} CLELAND	82B	SPEC	+	$30 \pi^+ p \rightarrow K_S^0 K^+ p$
110 ± 18	350	HYAMS	78	ASPK	+	$12.7 \pi^+ p \rightarrow K^+ K_S^0 p$

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
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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 $p p \rightarrow p_f \eta \pi^0 p_s$
112 ± 14		BARBERIS	00H		450 $p p \rightarrow \Delta_f^{++} \eta \pi^- p_s$
112 ± 3 ± 2		¹⁷ AMSLER	94D	CBAR	0.0 $\bar{p} p \rightarrow \pi^0 \pi^0 \eta$
103 ± 6 ± 3		BELADIDZE	93	VES	37 $\pi^- N \rightarrow \eta \pi^- N$
112.2 ± 5.7	2561	DELFOSSÉ	81	SPEC +	$\pi^\pm p \rightarrow p \pi^\pm \eta$
116.6 ± 7.7	1653	DELFOSSÉ	81	SPEC -	$\pi^\pm p \rightarrow p \pi^\pm \eta$
108 ± 9	1000	KEY	73	OSPK -	6 $\pi^- p \rightarrow p \pi^- \eta$

• • • We do not use the following data for averages, fits, limits, etc. • • •

110 ± 4		ANISOVICH	09	RVUE	$\bar{p} p, \pi N$
127 ± 2 ± 2		¹⁸ THOMPSON	97	MPS	18 $\pi^- p \rightarrow \eta \pi^- p$
118 ± 10		ARMSTRONG	93C	E760 0	$\bar{p} p \rightarrow \pi^0 \eta \eta \rightarrow 6\gamma$
104 ± 9	6200	¹⁹ CONFORTO	73	OSPK -	6 $\pi^- p \rightarrow p \pi^- \eta$

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
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119±25 OUR AVERAGE

140 ± 35 ± 20	IVANOV	01	B852	18 $\pi^- p \rightarrow \eta' \pi^- p$
106 ± 32	BELADIDZE	93	VES	37 $\pi^- N \rightarrow \eta' \pi^- N$

$a_2(1320)$ 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 $K\bar{K}$	(4.9 ± 0.8) %	
Γ_8 $\eta'(958)\pi$	(5.3 ± 0.9) × 10 ⁻³	
Γ_9 $\pi^\pm\gamma$	(2.68 ± 0.31) × 10 ⁻³	
Γ_{10} $\gamma\gamma$	(9.4 ± 0.7) × 10 ⁻⁶	
Γ_{11} e^+e^-	< 5 × 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 $\langle \delta x_i \delta x_j \rangle / (\delta x_i \delta x_j)$, in percent, from the fit to the branching fractions, $x_i \equiv \Gamma_i / \Gamma_{\text{total}}$. 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
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• • • We do not use the following data for averages, fits, limits, etc. • • •

18.5 ± 3.0	870	²⁰ SCHEGELSKY 06A	RVUE	0	$\gamma\gamma \rightarrow K_S^0 K_S^0$
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²⁰ From analysis of L3 data at 91 and 183–209 GeV, using $\Gamma(a_2(1320) \rightarrow \gamma\gamma) = 0.91$ keV and SU(3) relations.

$\Gamma(K\bar{K})$ Γ_7

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

7.0 ^{+2.0} _{-1.5}	870	²¹ SCHEGELSKY 06A	RVUE	0	$\gamma\gamma \rightarrow K_S^0 K_S^0$
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²¹ From analysis of L3 data at 91 and 183–209 GeV, using $\Gamma(a_2(1320) \rightarrow \gamma\gamma) = 0.91$ keV and SU(3) relations.

$\Gamma(\pi^\pm\gamma)$ Γ_9

VALUE (keV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
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287 ± 30 OUR AVERAGE

284 ± 25 ± 25	7100	MOLCHANOV 01	SELX		600 $\pi^- A \rightarrow \pi^+ \pi^- \pi^- A$
295 ± 60		CIHANGIR 82	SPEC	+	200 $\pi^+ A$

• • • We do not use the following data for averages, fits, limits, etc. • • •

461 ± 110		²² MAY	77	SPEC	± 9.7 γA
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²² Assuming one-pion exchange.

$\Gamma(\gamma\gamma)$ Γ_{10}

<u>VALUE (keV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
1.00±0.06 OUR AVERAGE					
0.98±0.05±0.09		ACCIARRI	97T	L3	$e^+e^- \rightarrow e^+e^-\pi^+\pi^-\pi^0$
0.96±0.03±0.13		ALBRECHT	97B	ARG	$e^+e^- \rightarrow e^+e^-\pi^+\pi^-\pi^0$
1.26±0.26±0.18	36	BARU	90	MD1	$e^+e^- \rightarrow e^+e^-\pi^+\pi^-\pi^0$
1.00±0.07±0.15	415	BEHREND	90C	CELL 0	$e^+e^- \rightarrow e^+e^-\pi^+\pi^-\pi^0$
1.03±0.13±0.21		BUTLER	90	MRK2	$e^+e^- \rightarrow e^+e^-\pi^+\pi^-\pi^0$
1.01±0.14±0.22	85	OEST	90	JADE	$e^+e^- \rightarrow e^+e^-\pi^0\eta$
0.90±0.27±0.15	56	²³ ALTHOFF	86	TASS 0	$e^+e^- \rightarrow e^+e^-3\pi$
1.14±0.20±0.26		²⁴ ANTREASYAN	86	CBAL 0	$e^+e^- \rightarrow e^+e^-\pi^0\eta$
1.06±0.18±0.19		BERGER	84C	PLUT 0	$e^+e^- \rightarrow e^+e^-3\pi$

• • • We do not use the following data for averages, fits, limits, etc. • • •

0.81±0.19 ^{+0.42} _{-0.11}	35	²³ BEHREND	83B	CELL 0	$e^+e^- \rightarrow e^+e^-3\pi$
0.77±0.18±0.27	22	²⁴ EDWARDS	82F	CBAL 0	$e^+e^- \rightarrow e^+e^-\pi^0\eta$

²³ From $\rho\pi$ decay mode.

²⁴ From $\eta\pi^0$ decay mode.

$\Gamma(e^+e^-)$ Γ_{11}

<u>VALUE (eV)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
< 0.56	90	ACHASOV	00K	SND $e^+e^- \rightarrow \pi^0\pi^0$
<25	90	VOROBYEV	88	ND $e^+e^- \rightarrow \pi^0\eta$

• • • We do not use the following data for averages, fits, limits, etc. • • •

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

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

<u>VALUE (keV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.65±0.02±0.02	18k	²⁵ SCHEGELSKY	06	RVUE $\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$

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

$\Gamma(\eta\pi) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ $\Gamma_5\Gamma_{10}/\Gamma$

<u>VALUE (keV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.145 ^{+0.097} _{-0.034}	²⁶ UEHARA	09A	BELL $e^+e^- \rightarrow e^+e^-\eta\pi^0$

²⁶ From the D_2 -wave. The fraction of the D_0 -wave is $3.4^{+2.3}_{-1.1}\%$.

$\Gamma(K\bar{K}) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$					$\Gamma_7\Gamma_{10}/\Gamma$
<u>VALUE (keV)</u>		<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
0.126±0.007±0.028	27	ALBRECHT	90G ARG	$e^+e^- \rightarrow e^+e^-K^+K^-$	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.081±0.006±0.027	28	ALBRECHT	90G ARG	$e^+e^- \rightarrow e^+e^-K^+K^-$	
27 Using an incoherent background.					
28 Using a coherent background.					

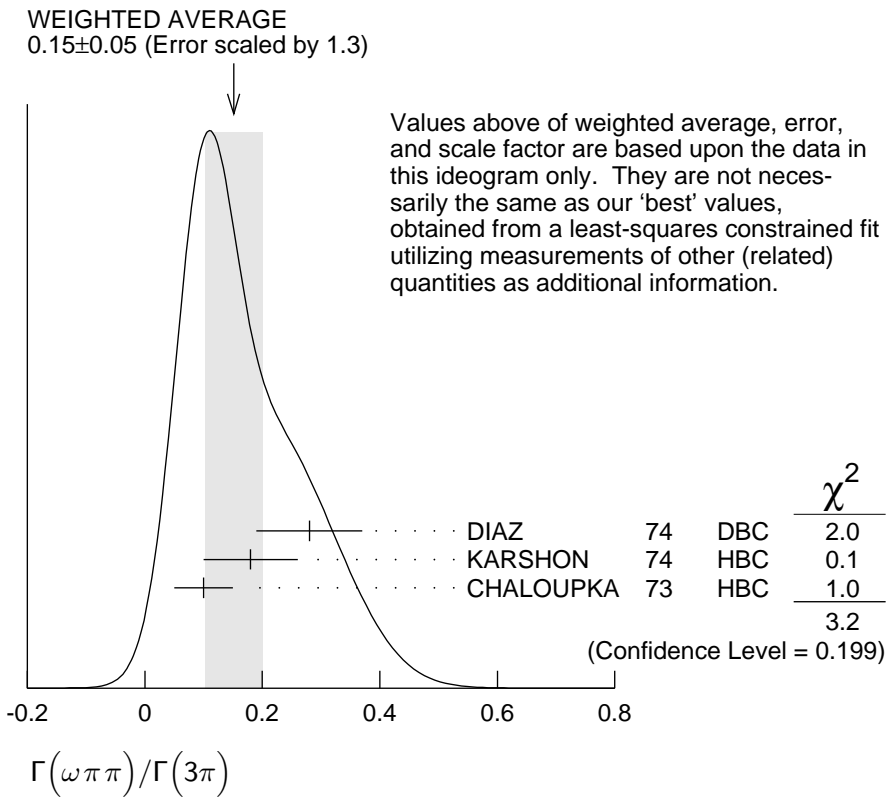
$a_2(1320)$ BRANCHING RATIOS

$[\Gamma(f_2(1270)\pi) + \Gamma(\rho(1450)\pi)]/\Gamma(\rho(770)\pi)$					$(\Gamma_3+\Gamma_4)/\Gamma_2$
<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
<0.12	90	ABRAMOVI...	70B HBC	-	3.93 $\pi^- p$

$\Gamma(\eta\pi)/\Gamma(3\pi)$					Γ_5/Γ_1
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
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	CHALOUKKA	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
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
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		29 KARSHON	74 HBC		Avg. of above two
0.10±0.05	279	CHALOUKKA	73 HBC	-	3.9 $\pi^- p$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.29±0.08	140	29 KARSHON	74 HBC	0	4.9 $\pi^+ p$
0.10±0.04	60	29 KARSHON	74 HBC	+	4.9 $\pi^+ p$
0.19±0.08		DEFOIX	73 HBC	0	0.7 $\bar{p}p$

29 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.



$\Gamma(K\bar{K})/\Gamma(3\pi)$

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		³⁰ BERTIN	98B	OBLX	0.0 $\bar{p}p \rightarrow K^\pm K_S \pi^\mp$
0.056±0.014	50	³¹ CHALOUPKA	73	HBC	- 3.9 $\pi^- p$
0.097±0.018	113	³¹ ALSTON-...	71	HBC	+ 7.0 $\pi^+ p$
0.06 ±0.03		³¹ ABRAMOVI...	70B	HBC	- 3.93 $\pi^- p$
0.054±0.022		³¹ CHUNG	68	HBC	- 3.2 $\pi^- p$
³⁰ Using 4 π data from BERTIN 97D.					
³¹ Included in CHABAUD 78 review.					

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

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	³² BERTIN	98B	OBLX 0.0 $\bar{p}p \rightarrow K^\pm K_S \pi^\mp$
³² Using $\eta\pi\pi$ data from AMSLER 94D.			

$\Gamma(\eta\pi)/[\Gamma(3\pi) + \Gamma(\eta\pi) + \Gamma(K\bar{K})]$

$\Gamma_5/(\Gamma_1+\Gamma_5+\Gamma_7)$

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 $\bar{p}p$
0.15 ±0.04	34	BARNHAM	71	HBC	+ 3.7 $\pi^+ p$

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

<u>VALUE</u>	<u>EVTs</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
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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		³³ ESPIGAT	72	HBC	±	0.0 $\bar{p} p$
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³³Not averaged because of discrepancy between masses from $K\bar{K}$ and $\rho\pi$ modes.

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

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
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• • • We do not use the following data for averages, fits, limits, etc. • • •

<0.006	95	ALDE	92B	GAM2		38,100 $\pi^- p \rightarrow \eta' \pi^0 n$
<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

<u>VALUE</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
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• • • 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 $\begin{smallmatrix} +0.03 \\ -0.04 \end{smallmatrix}$		BOECKMANN	70	HBC	0	5.0 $\pi^+ p$

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

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
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0.037±0.006 OUR AVERAGE

0.032±0.009	ABELE	97C	CBAR	0.0 $\bar{p} p \rightarrow \pi^0 \pi^0 \eta'$
0.047±0.010±0.004	³⁴ BELADIDZE	93	VES	37 $\pi^- N \rightarrow a_2^- N$
0.034±0.008±0.005	BELADIDZE	92	VES	36 $\pi^- C \rightarrow a_2^- C$

³⁴Using $B(\eta' \rightarrow \pi^+ \pi^- \eta) = 0.441$, $B(\eta \rightarrow \gamma\gamma) = 0.389$ and $B(\eta \rightarrow \pi^+ \pi^- \pi^0) = 0.236$.

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

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

0.005 $\begin{smallmatrix} +0.005 \\ -0.003 \end{smallmatrix}$	³⁵ EISENBERG	72	HBC	4.3,5.25,7.5 γp
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³⁵Pion-exchange model used in this estimation.

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

<u>VALUE (units 10⁻⁹)</u>	<u>CL%</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
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• • • We do not use the following data for averages, fits, limits, etc. • • •

<6	90	ACHASOV	00K	SND $e^+ e^- \rightarrow \pi^0 \pi^0$
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