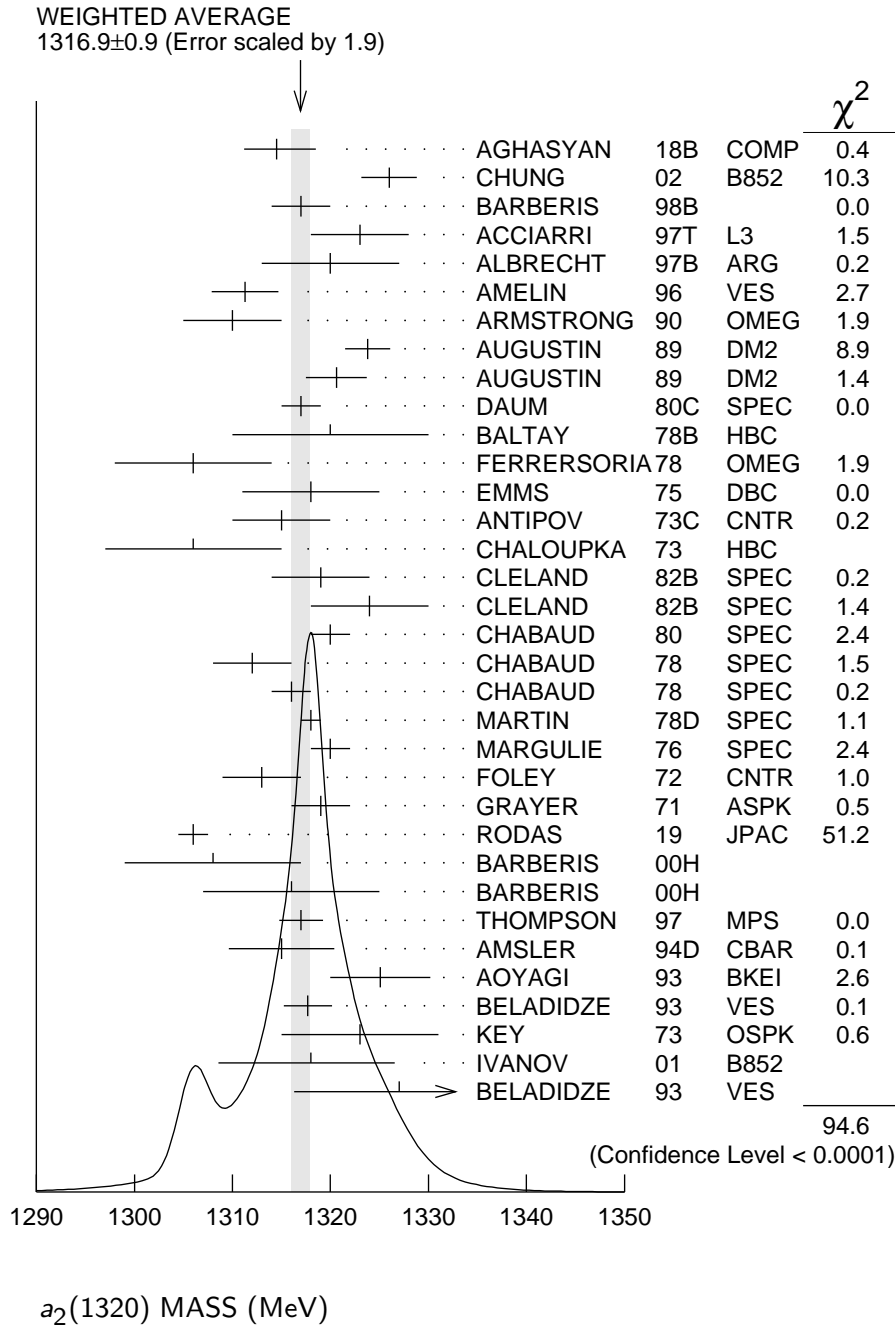


# $a_2(1320)$

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

## $a_2(1320)$ MASS

VALUE (MeV)                      DOCUMENT ID  
**1316.9±0.9 OUR AVERAGE** Includes data from the 4 datablocks that follow this one.  
 Error includes scale factor of 1.9. See the ideogram below.



**3 $\pi$  MODE**

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
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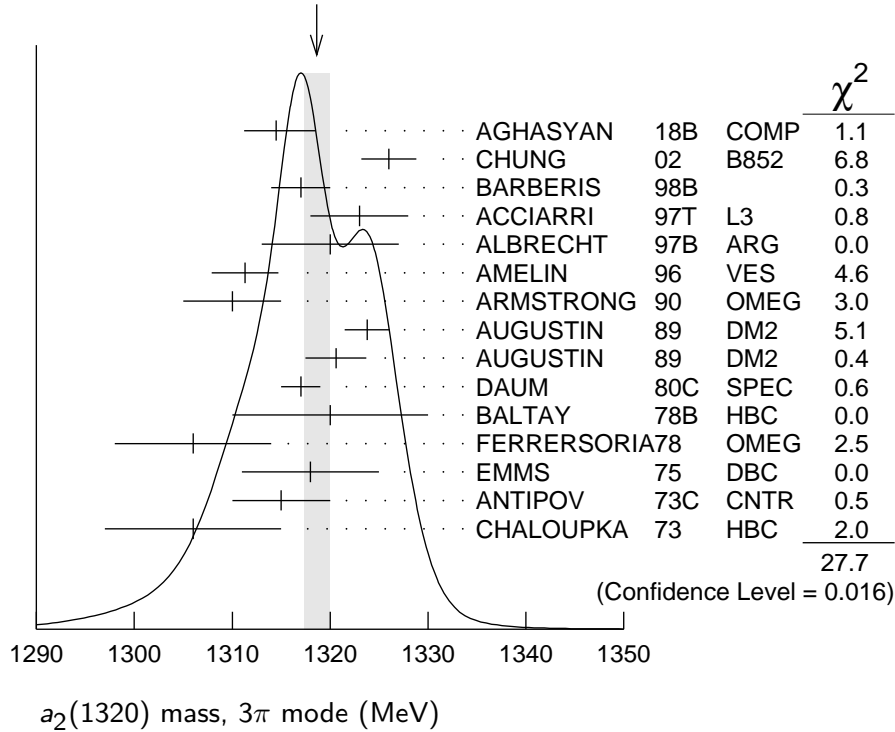
The data in this block is included in the average printed for a previous datablock.

**1318.6 $\pm$  1.3 OUR AVERAGE** Error includes scale factor of 1.4. See the ideogram below.

1314.5 $^{+4.0}_{-3.3}$	46M	<sup>1</sup> AGHASYAN	18B	COMP	190 $\pi^- p \rightarrow \pi^- \pi^+ \pi^- p$
1326 $\pm 2 \pm 2$		CHUNG	02	B852	18.3 $\pi^- p \rightarrow \pi^+ \pi^- \pi^- p$
1317 $\pm 3$		BARBERIS	98B		450 $p p \rightarrow p_f \pi^+ \pi^- \pi^0 p_s$
1323 $\pm 4 \pm 3$		ACCIARRI	97T	L3	$e^+ e^- \rightarrow e^+ e^- \pi^+ \pi^- \pi^0$
1320 $\pm 7$		ALBRECHT	97B	ARG	$e^+ e^- \rightarrow e^+ e^- \pi^+ \pi^- \pi^0$
1311.3 $\pm 1.6 \pm 3.0$	72.4k	AMELIN	96	VES	36 $\pi^- p \rightarrow \pi^+ \pi^- \pi^0 n$
1310 $\pm 5$		ARMSTRONG	90	OMEG 0	300.0 $p p \rightarrow p p \pi^+ \pi^- \pi^0$
1323.8 $\pm 2.3$	4022	AUGUSTIN	89	DM2 $\pm$	$J/\psi \rightarrow \rho^\pm a_2^\mp$
1320.6 $\pm 3.1$	3562	AUGUSTIN	89	DM2 0	$J/\psi \rightarrow \rho^0 a_2^0$
1317 $\pm 2$	25k	<sup>2</sup> DAUM	80C	SPEC -	63,94 $\pi^- p \rightarrow 3\pi p$
1320 $\pm 10$	1097	<sup>2</sup> BALTAY	78B	HBC +0	15 $\pi^+ p \rightarrow p 4\pi$
1306 $\pm 8$		FERRERSORIA	78	OMEG -	9 $\pi^- p \rightarrow p 3\pi$
1318 $\pm 7$	1.6k	<sup>2</sup> EMMS	75	DBC 0	4 $\pi^+ n \rightarrow p(3\pi)^0$
1315 $\pm 5$		<sup>2</sup> ANTIPOV	73C	CNTR -	25,40 $\pi^- p \rightarrow p \eta \pi^-$
1306 $\pm 9$	1580	CHALOUPKA	73	HBC -	3.9 $\pi^- p$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
1321 $\pm 1 \begin{smallmatrix} +0 \\ -7 \end{smallmatrix}$	420k	<sup>3</sup> ALEKSEEV	10	COMP	190 $\pi^- Pb \rightarrow \pi^- \pi^- \pi^+ Pb'$
1300 $\pm 2 \pm 4$	18k	<sup>4</sup> SCHEGELSKY	06	RVUE 0	$\gamma\gamma \rightarrow \pi^+ \pi^- \pi^0$
1305 $\pm 14$		CONDO	93	SHF	$\gamma p \rightarrow n \pi^+ \pi^+ \pi^-$
1310 $\pm 2$		<sup>2</sup> EVANGELIS...	81	OMEG -	12 $\pi^- p \rightarrow 3\pi p$
1343 $\pm 11$	490	BALTAY	78B	HBC 0	15 $\pi^+ p \rightarrow \Delta 3\pi$
1309 $\pm 5$	5k	BINNIE	71	MMS -	$\pi^- p$ near $a_2$ thresh- old
1299 $\pm 6$	28k	BOWEN	71	MMS -	5 $\pi^- p$
1300 $\pm 6$	24k	BOWEN	71	MMS +	5 $\pi^+ p$
1309 $\pm 4$	17k	BOWEN	71	MMS -	7 $\pi^- p$
1306 $\pm 4$	941	ALSTON-...	70	HBC +	7.0 $\pi^+ p \rightarrow 3\pi p$

<sup>1</sup> Statistical error negligible.<sup>2</sup> From a fit to  $J^P = 2^+ \rho\pi$  partial wave.<sup>3</sup> Superseded by AGHASYAN 2018B.<sup>4</sup> From analysis of L3 data at 183–209 GeV.

WEIGHTED AVERAGE  
 $1318.6 \pm 1.3$  (Error scaled by 1.4)



### $K\bar{K}$ 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	<sup>1,2</sup> CLELAND	82B	SPEC	+	50 $\pi^+ p \rightarrow K_S^0 K^+ p$
1324 ± 6	5200	<sup>1,2</sup> 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		<sup>1,3</sup> 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	<sup>3</sup> 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	<sup>4</sup> SCHEGELSKY	06A	RVUE	0	$\gamma\gamma \rightarrow K_S^0 K_S^0$
1330 ± 11	1000	<sup>1,2</sup> CLELAND	82B	SPEC	+	30 $\pi^+ p \rightarrow K_S^0 K^+ p$
1324 ± 5	350	HYAMS	78	ASPK	+	12.7 $\pi^+ p \rightarrow K^+ K_S^0 p$

<sup>1</sup> From a fit to  $J^P = 2^+$  partial wave.

<sup>2</sup> Number of events evaluated by us.

<sup>3</sup> Systematic error in mass scale subtracted.

<sup>4</sup> 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.

**1312.2 $\pm$  2.8 OUR AVERAGE** Error includes scale factor of 2.6. See the ideogram below.

1306.0 $\pm$ 0.8 $\pm$ 1.3		<sup>1</sup> RODAS	19	JPAC	191 $\pi^- p \rightarrow \eta^{(\prime)} \pi^- p$
1308 $\pm$ 9		BARBERIS	00H		450 $p p \rightarrow p_f \eta \pi^0 p_S$
1316 $\pm$ 9		BARBERIS	00H		450 $p p \rightarrow \Delta_f^{++} \eta \pi^- p_S$
1317 $\pm$ 1 $\pm$ 2		THOMPSON	97	MPS	18 $\pi^- p \rightarrow \eta \pi^- p$
1315 $\pm$ 5 $\pm$ 2		<sup>2</sup> AMSLER	94D	CBAR	0.0 $\bar{p} p \rightarrow \pi^0 \pi^0 \eta$
1325.1 $\pm$ 5.1		AOYAGI	93	BKEI	$\pi^- p \rightarrow \eta \pi^- p$
1317.7 $\pm$ 1.4 $\pm$ 2.0		BELADIDZE	93	VES	37 $\pi^- N \rightarrow \eta \pi^- N$
1323 $\pm$ 8	1000	<sup>3</sup> KEY	73	OSPK	– 6 $\pi^- p \rightarrow p \pi^- \eta$

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

1307 $\pm$ 1 $\pm$ 6		<sup>4</sup> JACKURA	18	JPAC	$\pi^- p \rightarrow \eta \pi^- p$
1315 $\pm$ 12		<sup>5</sup> ADOLPH	15	COMP	191 $\pi^- p \rightarrow \eta^{(\prime)} \pi^- p$
1309 $\pm$ 4		ANISOVICH	09	RVUE	$\bar{p} p, \pi N$
1324 $\pm$ 5		ARMSTRONG	93C	E760	0 $\bar{p} p \rightarrow \pi^0 \eta \eta \rightarrow 6\gamma$
1336.2 $\pm$ 1.7	2561	DELFOSSÉ	81	SPEC	+ $\pi^\pm p \rightarrow p \pi^\pm \eta$
1330.7 $\pm$ 2.4	1653	DELFOSSÉ	81	SPEC	– $\pi^\pm p \rightarrow p \pi^\pm \eta$
1324 $\pm$ 8	6200	<sup>3,6</sup> CONFORTO	73	OSPK	– 6 $\pi^- p \rightarrow p \pi^- \eta$

<sup>1</sup> The coupled-channel analysis of both the  $\eta\pi$  and  $\eta'\pi$  systems using ADOLPH 15 data. The mass is extracted from the T-matrix pole.

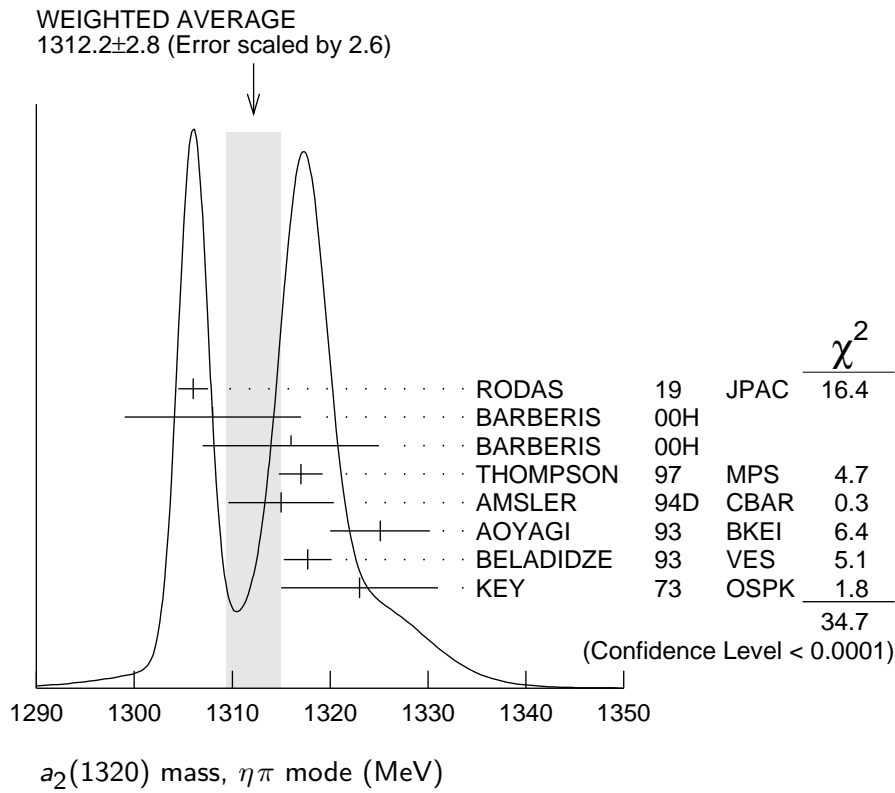
<sup>2</sup> The systematic error of 2 MeV corresponds to the spread of solutions.

<sup>3</sup> Error includes 5 MeV systematic mass-scale error.

<sup>4</sup> Superseded by RODAS 19.

<sup>5</sup> ADOLPH 15 value is derived from a Breit-Wigner fit with mass-dependent width taking the  $\eta\pi$  and  $\rho\pi$  channels into account.

<sup>6</sup> 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 $\pi$ MODE

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
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### 105.0 $\begin{smallmatrix} + \\ - \end{smallmatrix}$ $\begin{smallmatrix} 1.7 \\ 1.9 \end{smallmatrix}$ OUR AVERAGE

106.6 $\begin{smallmatrix} + \\ - \end{smallmatrix}$ $\begin{smallmatrix} 3.4 \\ 7.0 \end{smallmatrix}$	46M	<sup>1</sup> AGHASYAN	18B	COMP	190 $\pi^- p \rightarrow \pi^- \pi^+ \pi^- p$
108 ± 3 ± 15		CHUNG	02	B852	18.3 $\pi^- p \rightarrow \pi^+ \pi^- \pi^- p$
120 ± 10		BARBERIS	98B		450 $pp \rightarrow p_f \pi^+ \pi^- \pi^0 p_s$
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		<sup>2</sup> EVANGELIS...	81	OMEG	−	12 $\pi^- p \rightarrow 3\pi p$
96 ± 9	25k	<sup>2</sup> DAUM	80C	SPEC	−	63,94 $\pi^- p \rightarrow 3\pi p$
110 ± 15	1097	<sup>2</sup> BALTAY	78B	HBC	+0	15 $\pi^+ p \rightarrow p 4\pi$
112 ± 18	1.6k	<sup>2</sup> EMMS	75	DBC	0	4 $\pi^+ n \rightarrow p(3\pi)^0$
122 ± 14	1.2k	<sup>2,3</sup> WAGNER	75	HBC	0	7 $\pi^+ p \rightarrow \Delta^{++}(3\pi)^0$
115 ± 15		<sup>2</sup> 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. • • •

110 ± 2 $^{+2}_{-15}$	420k	<sup>4</sup> ALEKSEEV	10	COMP		190 $\pi^- P b \rightarrow \pi^- \pi^- \pi^+ P b'$
117 ± 6 ± 20	18k	<sup>5</sup> 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 $\pi^+ p \rightarrow 3\pi p$

<sup>1</sup> Statistical error negligible.

<sup>2</sup> From a fit to  $J^P = 2^+ \rho \pi$  partial wave.

<sup>3</sup> Width errors enlarged by us to  $4\Gamma/\sqrt{N}$ ; see the note with the  $K^*(892)$  mass.

<sup>4</sup> Superseded by AGHASYAN 2018B.

<sup>5</sup> From analysis of L3 data at 183–209 GeV.

## $K\bar{K}$ AND $\eta\pi$ MODES

VALUE (MeV)

DOCUMENT ID

**107 ± 5 OUR ESTIMATE**

**112.5 ± 1.2 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	<sup>1,2</sup> CLELAND	82B	SPEC	+	50 $\pi^+ p \rightarrow K_S^0 K^+ p$
120 ± 25	5200	<sup>1,2</sup> 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		<sup>1,3</sup> MARTIN	78D	SPEC	−	10 $\pi^- p \rightarrow K_S^0 K^- p$
105 ± 8	2724	<sup>3</sup> 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	<sup>3</sup> 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	$\pm 15$	870	<sup>4</sup> SCHEGELSKY	06A	RVUE	0	$\gamma\gamma \rightarrow K_S^0 K_S^0$
121	$\pm 51$	1000	<sup>1,2</sup> CLELAND	82B	SPEC	+	$30 \pi^+ p \rightarrow K_S^0 K^+ p$
110	$\pm 18$	350	HYAMS	78	ASPK	+	$12.7 \pi^+ p \rightarrow K^+ K_S^0 p$

<sup>1</sup> From a fit to  $J^P = 2^+$  partial wave.

<sup>2</sup> Number of events evaluated by us.

<sup>3</sup> Width errors enlarged by us to  $4\Gamma/\sqrt{N}$ ; see the note with the  $K^*(892)$  mass.

<sup>4</sup> 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.

### 113.4 $\pm$ 1.3 OUR AVERAGE

114.4 $\pm$ 1.6 $\pm$ 0.0		<sup>1</sup> RODAS	19	JPAC	191 $\pi^- p \rightarrow \eta^{(\prime)} \pi^- p$	
115 $\pm$ 20		BARBERIS	00H		450 $p p \rightarrow p_f \eta \pi^0 p_S$	
112 $\pm$ 14		BARBERIS	00H		450 $p p \rightarrow \Delta_f^{++} \eta \pi^- p_S$	
112 $\pm$ 3 $\pm$ 2		<sup>2</sup> AMSLER	94D	CBAR	0.0 $\bar{p} p \rightarrow \pi^0 \pi^0 \eta$	
103 $\pm$ 6 $\pm$ 3		BELADIDZE	93	VES	$37 \pi^- N \rightarrow \eta \pi^- N$	
112.2 $\pm$ 5.7	2561	DELFOSSÉ	81	SPEC	+	$\pi^\pm p \rightarrow p \pi^\pm \eta$
116.6 $\pm$ 7.7	1653	DELFOSSÉ	81	SPEC	-	$\pi^\pm p \rightarrow p \pi^\pm \eta$
108 $\pm$ 9	1000	KEY	73	OSPK	-	$6 \pi^- p \rightarrow p \pi^- \eta$

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

112 $\pm$ 1 $\pm$ 8		<sup>3</sup> JACKURA	18	JPAC	$\pi^- p \rightarrow \eta \pi^- p$	
119 $\pm$ 14		<sup>4</sup> ADOLPH	15	COMP	191 $\pi^- p \rightarrow \eta^{(\prime)} \pi^- p$	
110 $\pm$ 4		ANISOVICH	09	RVUE	$\bar{p} p, \pi N$	
127 $\pm$ 2 $\pm$ 2		<sup>5</sup> THOMPSON	97	MPS	$18 \pi^- p \rightarrow \eta \pi^- p$	
118 $\pm$ 10		ARMSTRONG	93C	E760	0	$\bar{p} p \rightarrow \pi^0 \eta \eta \rightarrow 6\gamma$
104 $\pm$ 9	6200	<sup>6</sup> CONFORTO	73	OSPK	-	$6 \pi^- p \rightarrow p \text{MM}^-$

<sup>1</sup> The coupled-channel analysis of both the  $\eta\pi$  and  $\eta'\pi$  systems using ADOLPH 15 data. The width is extracted from the T-matrix pole.

<sup>2</sup> The systematic error of 2 MeV corresponds to the spread of solutions.

<sup>3</sup> Superseded by RODAS 19.

<sup>4</sup> ADOLPH 15 value is derived from a Breit-Wigner fit with mass-dependent width taking the  $\eta\pi$  and  $\rho\pi$  channels into account.

<sup>5</sup> Resolution is not unfolded.

<sup>6</sup> Missing mass with enriched MMS =  $\eta\pi^-$ ,  $\eta = 2\gamma$ .

## $\eta'\pi$ MODE

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>119<math>\pm</math>25 OUR AVERAGE</b>			
140 $\pm$ 35 $\pm$ 20	IVANOV	01	B852 $18 \pi^- p \rightarrow \eta' \pi^- p$
106 $\pm$ 32	BELADIDZE	93	VES $37 \pi^- N \rightarrow \eta' \pi^- N$

**$a_2(1320)$  DECAY MODES**

Mode	Fraction ( $\Gamma_i/\Gamma$ )	Scale factor/ Confidence level
$\Gamma_1$ $3\pi$	$(70.1 \pm 2.7) \%$	S=1.2
$\Gamma_2$ $\rho(770)\pi$		
$\Gamma_3$ $f_2(1270)\pi$		
$\Gamma_4$ $\rho(1450)\pi$		
$\Gamma_5$ $\eta\pi$	$(14.5 \pm 1.2) \%$	
$\Gamma_6$ $\omega\pi\pi$	$(10.6 \pm 3.2) \%$	S=1.3
$\Gamma_7$ $K\bar{K}$	$(4.9 \pm 0.8) \%$	
$\Gamma_8$ $\eta'(958)\pi$	$(5.5 \pm 0.9) \times 10^{-3}$	
$\Gamma_9$ $\pi^\pm\gamma$	$(2.91 \pm 0.27) \times 10^{-3}$	
$\Gamma_{10}$ $\gamma\gamma$	$(9.4 \pm 0.7) \times 10^{-6}$	
$\Gamma_{11}$ $e^+e^-$	$< 5 \times 10^{-9}$	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  $\langle \delta x_i \delta x_j \rangle / (\delta x_i \delta x_j)$ , 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** **$\Gamma(\eta\pi)$   $\Gamma_5$** 

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

$18.5 \pm 3.0$	870	<sup>1</sup> SCHEGELSKY 06A	RVUE	0	$\gamma\gamma \rightarrow K_S^0 K_S^0$
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<sup>1</sup>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.

 **$\Gamma(K\bar{K})$   $\Gamma_7$** 

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	<sup>1</sup> SCHEGELSKY 06A	RVUE	0	$\gamma\gamma \rightarrow K_S^0 K_S^0$
---------------------	-----	-----------------------------	------	---	--

<sup>1</sup>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.



**$\Gamma(\pi^\pm\gamma)$**   **$\Gamma_9$**

<u>VALUE (keV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
<b>311± 25 OUR AVERAGE</b>					
358± 6±42		<sup>1</sup> ADOLPH 14	COMP	-	190 $\pi^-$ Pb $\rightarrow$ $\pi^+\pi^-\pi^-\text{Pb}'$
284± 25±25	7.1k	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		<sup>2</sup> MAY 77	SPEC	±	9.7 $\gamma$ A
<sup>1</sup> Primakoff reaction using $a_2(1320) \rightarrow 3\pi$ branching ratio of 70.1%.					
<sup>2</sup> Assuming one-pion exchange.					

**$\Gamma(\gamma\gamma)$**   **$\Gamma_{10}$**

<u>VALUE (keV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>CHG</u>	<u>COMMENT</u>
<b>1.00±0.06 OUR AVERAGE</b>					
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	<sup>1</sup> ALTHOFF 86	TASS	0	$e^+e^- \rightarrow e^+e^-3\pi$
1.14±0.20±0.26		<sup>2</sup> 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 <sup>+0.42</sup> <sub>-0.11</sub>	35	<sup>1</sup> BEHREND 82C	CELL	0	$e^+e^- \rightarrow e^+e^-3\pi$
0.77±0.18±0.27	22	<sup>2</sup> EDWARDS 82F	CBAL	0	$e^+e^- \rightarrow e^+e^-\pi^0\eta$
<sup>1</sup> From $\rho\pi$ decay mode.					
<sup>2</sup> From $\eta\pi^0$ decay mode.					

**$\Gamma(e^+e^-)$**   **$\Gamma_{11}$**

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

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

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

<u>VALUE (keV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.65±0.02±0.02	18k	<sup>1</sup> SCHEGELSKY 06	RVUE	$\gamma\gamma \rightarrow \pi^+\pi^-\pi^0$
<sup>1</sup> From analysis of L3 data at 183–209 GeV.				

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

VALUE (keV)                      DOCUMENT ID    TECN    COMMENT

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

$0.145^{+0.097}_{-0.034}$                       <sup>1</sup> UEHARA    09A    BELL     $e^+e^- \rightarrow e^+e^-\eta\pi^0$

<sup>1</sup> From the  $D_2$ -wave. The fraction of the  $D_0$ -wave is  $3.4^{+2.3}_{-1.1}\%$ .

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

VALUE (keV)                      DOCUMENT ID    TECN    COMMENT

**$0.126 \pm 0.007 \pm 0.028$**                       <sup>1</sup> ALBRECHT    90G    ARG     $e^+e^- \rightarrow e^+e^-K^+K^-$

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

$0.081 \pm 0.006 \pm 0.027$                       <sup>2</sup> ALBRECHT    90G    ARG     $e^+e^- \rightarrow e^+e^-K^+K^-$

<sup>1</sup> Using an incoherent background.

<sup>2</sup> 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    -     $3.93 \pi^- p$

$\Gamma(\rho(770)\pi)/\Gamma(f_2(1270)\pi)$   $\Gamma_2/\Gamma_3$

VALUE                      EVTS                      DOCUMENT ID    TECN    COMMENT

**$16.5^{+1.2}_{-2.4}$**                       46M                      <sup>1</sup> AGHASYAN    18B    COMP    190     $\pi^- p \rightarrow \pi^- \pi^+ \pi^- p$

<sup>1</sup> Statistical error negligible.

$\Gamma(\eta\pi)/\Gamma(3\pi)$   $\Gamma_5/\Gamma_1$

VALUE                      EVTS                      DOCUMENT ID    TECN    CHG    COMMENT

**$0.207 \pm 0.018$  OUR FIT**

**$0.213 \pm 0.020$  OUR AVERAGE**

$0.18 \pm 0.05$		FORINO	76	HBC		$11 \pi^- p$
$0.22 \pm 0.05$	52	ANTIPOV	73	CNTR	-	$40 \pi^- p$
$0.211 \pm 0.044$	149	CHALOUKKA	73	HBC	-	$3.9 \pi^- p$
$0.246 \pm 0.042$	167	ALSTON-...	71	HBC	+	$7.0 \pi^+ p$
$0.25 \pm 0.09$	15	BOECKMANN	70	HBC	+	$5.0 \pi^+ p$
$0.23 \pm 0.08$	22	ASCOLI	68	HBC	-	$5 \pi^- p$
$0.12 \pm 0.08$		CHUNG	68	HBC	-	$3.2 \pi^- p$
$0.22 \pm 0.09$		CONTE	67	HBC	-	$11.0 \pi^- p$

$\Gamma(\omega\pi\pi)/\Gamma(3\pi)$   $\Gamma_6/\Gamma_1$

VALUE                      EVTS                      DOCUMENT ID    TECN    CHG    COMMENT

**$0.15 \pm 0.05$  OUR FIT**    Error includes scale factor of 1.3.

**$0.15 \pm 0.05$  OUR AVERAGE**    Error includes scale factor of 1.3. See the ideogram below.

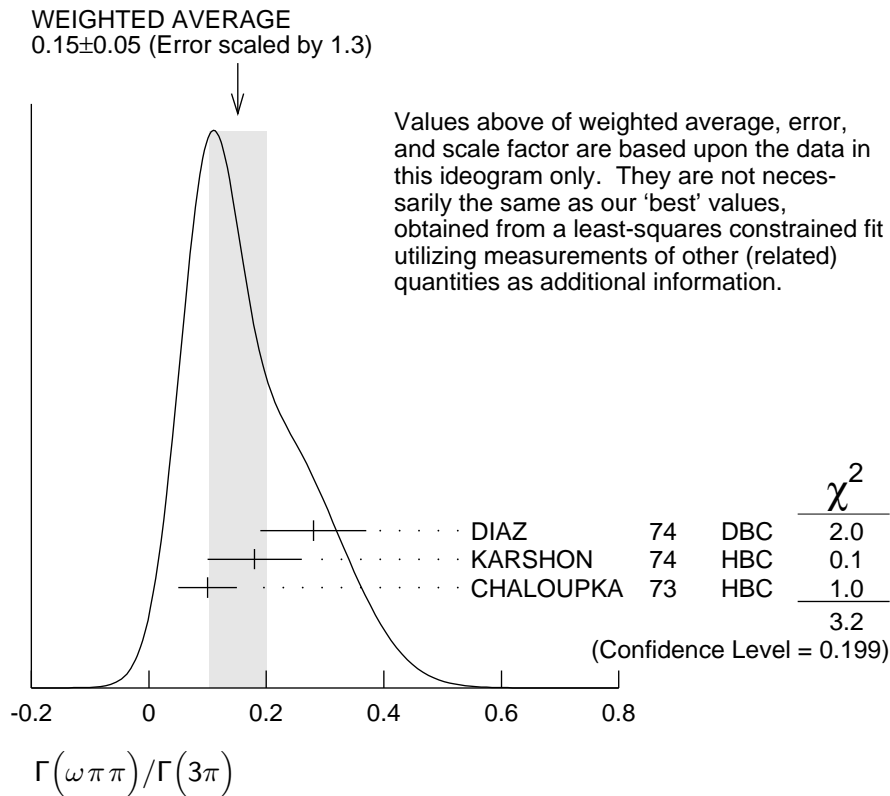
$0.28 \pm 0.09$	60	DIAZ	74	DBC	0	$6 \pi^+ n$
$0.18 \pm 0.08$		<sup>1</sup> KARSHON	74	HBC		Avg. of above two
$0.10 \pm 0.05$	279	<sup>2</sup> CHALOUKKA	73	HBC	-	$3.9 \pi^- p$

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

0.29±0.08	140	<sup>1</sup> KARSHON	74	HBC	0	4.9 $\pi^+ p$
0.10±0.04	60	<sup>1</sup> KARSHON	74	HBC	+	4.9 $\pi^+ p$
0.19±0.08		DEFOIX	73	HBC	0	0.7 $\bar{p} p$

<sup>1</sup> 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.

<sup>2</sup> Decays to  $b_1(1040)\pi$ ,  $b_1 \rightarrow \omega\pi$ . Error increased to account for possible systematic errors of complicated analysis.



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

**$\Gamma_7/\Gamma_1$**

VALUE	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
<b>0.070±0.012</b>					<b>OUR FIT</b>
<b>0.078±0.017</b>		CHABAUD	78	RVUE	

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

0.011±0.003		<sup>1</sup> BERTIN	98B	OBLX		0.0 $\bar{p} p \rightarrow K^\pm K_s \pi^\mp$
0.056±0.014	50	<sup>2</sup> CHALOUPKA	73	HBC	-	3.9 $\pi^- p$
0.097±0.018	113	<sup>2</sup> ALSTON-...	71	HBC	+	7.0 $\pi^+ p$
0.06 ±0.03		<sup>2</sup> ABRAMOVI...	70B	HBC	-	3.93 $\pi^- p$
0.054±0.022		<sup>2</sup> CHUNG	68	HBC	-	3.2 $\pi^- p$

<sup>1</sup> Using  $4\pi$  data from BERTIN 97D.

<sup>2</sup> Included in CHABAUD 78 review.

$\Gamma(K\bar{K})/\Gamma(\eta\pi)$   $\Gamma_7/\Gamma_5$

VALUE DOCUMENT ID TECN COMMENT

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

0.08 ± 0.02 <sup>1</sup> BERTIN 98B OBLX 0.0  $\bar{p}p \rightarrow K^\pm K_S \pi^\mp$

<sup>1</sup> 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  $\pi^+ p$

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

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 <sup>1</sup> 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 <sup>2</sup> ESPIGAT 72 HBC ± 0.0  $\bar{p}p$

<sup>1</sup> Montanet agrees. Vlada.

<sup>2</sup> Not averaged because of discrepancy between masses from  $K\bar{K}$  and  $\rho\pi$  modes.

$\Gamma(\eta'(958)\pi)/\Gamma_{\text{total}}$   $\Gamma_8/\Gamma$

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  $\pi^- p \rightarrow \eta' \pi^0 n$

< 0.02 97 BARNHAM 71 HBC + 3.7  $\pi^+ p$

0.004 ± 0.004 <sup>1</sup> BOESEBECK 68 HBC + 8  $\pi^+ p$

<sup>1</sup> No longer valid since  $\Gamma(K\bar{K})/\Gamma(3\pi)$  value has changed (MORRISON 71).

$\Gamma(\eta'(958)\pi)/\Gamma(3\pi)$   $\Gamma_8/\Gamma_1$

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  $\begin{matrix} +0.03 \\ -0.04 \end{matrix}$  BOECKMANN 70 HBC 0 5.0  $\pi^+ p$

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

$\Gamma_8/\Gamma_5$

VALUE	DOCUMENT ID	TECN	COMMENT
<b>0.038±0.005 OUR AVERAGE</b>			
0.05 ±0.02	ADOLPH	15	COMP 191 $\pi^- p \rightarrow \eta^{(\prime)} \pi^- p$
0.032±0.009	ABELE	97C	CBAR 0.0 $\bar{p} p \rightarrow \pi^0 \pi^0 \eta'$
0.047±0.010±0.004	<sup>1</sup> BELADIDZE	93	VES 37 $\pi^- N \rightarrow a_2^- N$
0.034±0.008±0.005	BELADIDZE	92	VES 36 $\pi^- C \rightarrow a_2^- C$

<sup>1</sup> Using  $B(\eta' \rightarrow \pi^+ \pi^- \eta) = 0.441$ ,  $B(\eta \rightarrow \gamma\gamma) = 0.389$  and  $B(\eta \rightarrow \pi^+ \pi^- \pi^0) = 0.236$ .

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

$\Gamma_9/\Gamma$

VALUE	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
0.005 <sup>+0.005</sup> <sub>-0.003</sub>	<sup>1</sup> EISENBERG	72	HBC 4.3,5.25,7.5 $\gamma p$

<sup>1</sup> Pion-exchange model used in this estimation.

### $\Gamma(e^+ e^-)/\Gamma_{\text{total}}$

$\Gamma_{11}/\Gamma$

VALUE (units 10 <sup>-9</sup> )	CL%	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
<6	90	ACHASOV	00K SND	$e^+ e^- \rightarrow \pi^0 \pi^0$

## $a_2(1320)$ REFERENCES

RODAS	19	PRL 122 042002	A. Rodas <i>et al.</i>	(JPAC Collab.)
AGHASYAN	18B	PR D98 092003	M. Aghasyan <i>et al.</i>	(COMPASS Collab.)
JACKURA	18	PL B779 464	A. Jackura <i>et al.</i>	(JPAC and COMPASS Collab.)
ADOLPH	15	PL B740 303	M. Adolph <i>et al.</i>	(COMPASS Collab.)
ADOLPH	14	EPJ A50 79	C. Adolph <i>et al.</i>	(COMPASS Collab.)
ALEKSEEV	10	PRL 104 241803	M.G. Alekseev <i>et al.</i>	(COMPASS Collab.)
ANISOVICH	09	IJMP A24 2481	V.V. Anisovich, A.V. Sarantsev	
UEHARA	09A	PR D80 032001	S. Uehara <i>et al.</i>	(BELLE Collab.)
SCHEGELSKY	06	EPJ A27 199	V.A. Schegelsky <i>et al.</i>	
SCHEGELSKY	06A	EPJ A27 207	V.A. Schegelsky <i>et al.</i>	
CHUNG	02	PR D65 072001	S.U. Chung <i>et al.</i>	(BNL E852 Collab.)
IVANOV	01	PRL 86 3977	E.I. Ivanov <i>et al.</i>	(BNL E852 Collab.)
MOLCHANOV	01	PL B521 171	V.V. Molchanov <i>et al.</i>	(FNAL SELEX Collab.)
ACHASOV	00K	PL B492 8	M.N. Achasov <i>et al.</i>	(Novosibirsk SND Collab.)
BARBERIS	00H	PL B488 225	D. Barberis <i>et al.</i>	(WA 102 Collab.)
BARBERIS	98B	PL B422 399	D. Barberis <i>et al.</i>	(WA 102 Collab.)
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.)
ACCIARRI	97T	PL B413 147	M. Acciarri <i>et al.</i>	(L3 Collab.)
ALBRECHT	97B	ZPHY C74 469	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
THOMPSON	97	PRL 79 1630	D.R. Thompson <i>et al.</i>	(BNL E852 Collab.)
AMELIN	96	ZPHY C70 71	D.V. Amelin <i>et al.</i>	(SERP, TBIL)
AMSLER	94D	PL B333 277	C. Amsler <i>et al.</i>	(Crystal Barrel Collab.)
AOYAGI	93	PL B314 246	H. Aoyagi <i>et al.</i>	(BKEI Collab.)
ARMSTRONG	93C	PL B307 394	T.A. Armstrong <i>et al.</i>	(FNAL, FERR, GENO+)
BELADIDZE	93	PL B313 276	G.M. Beladidze <i>et al.</i>	(VES Collab.)
CONDO	93	PR D48 3045	G.T. Condo <i>et al.</i>	(SLAC Hybrid Collab.)
ALDE	92B	ZPHY C54 549	D.M. Alde <i>et al.</i>	(SERP, BELG, LANL, LAPP+)
BELADIDZE	92	ZPHY C54 235	G.M. Beladidze <i>et al.</i>	(VES Collab.)
ALBRECHT	90G	ZPHY C48 183	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
ARMSTRONG	90	ZPHY C48 213	T.A. Armstrong, M. Benayoun, W. Beusch	(WA76 Coll.)
BARU	90	ZPHY C48 581	S.E. Baru <i>et al.</i>	(MD-1 Collab.)
BEHREND	90C	ZPHY C46 583	H.J. Behrend <i>et al.</i>	(CELLO Collab.)
BUTLER	90	PR D42 1368	F. Butler <i>et al.</i>	(Mark II Collab.)
OEST	90	ZPHY C47 343	T. Oest <i>et al.</i>	(JADE Collab.)

AUGUSTIN	89	NP B320 1	J.E. Augustin, G. Cosme	(DM2 Collab.)
VOROBYEV	88	SJNP 48 273	P.V. Vorobiev <i>et al.</i>	(NOVO)
		Translated from YAF 48 436.		
ALTHOFF	86	ZPHY C31 537	M. Althoff <i>et al.</i>	(TASSO Collab.)
ANTREASYAN	86	PR D33 1847	D. Antreasyan <i>et al.</i>	(Crystal Ball Collab.)
BERGER	84C	PL 149B 427	C. Berger <i>et al.</i>	(PLUTO Collab.)
BEHREND	82C	PL 114B 378	H.J. Behrend <i>et al.</i>	(CELLO Collab.)
Also		PL 125B 518 (erratum)	H.J. Behrend <i>et al.</i>	(CELLO Collab.)
CHANGIR	82	PL 117B 123	S. Cihangir <i>et al.</i>	(FNAL, MINN, ROCH)
CLELAND	82B	NP B208 228	W.E. Cleland <i>et al.</i>	(DURH, GEVA, LAUS+)
EDWARDS	82F	PL 110B 82	C. Edwards <i>et al.</i>	(CIT, HARV, PRIN+)
DELFOSSÉ	81	NP B183 349	A. Delfosse <i>et al.</i>	(GEVA, LAUS)
EVANGELIS...	81	NP B178 197	C. Evangelista <i>et al.</i>	(BARI, BONN, CERN+)
CHABAUD	80	NP B175 189	V. Chabaud <i>et al.</i>	(CERN, MPIM, AMST)
DAUM	80C	PL 89B 276	C. Daum <i>et al.</i>	(AMST, CERN, CRAC, MPIM+) JP
BALTAY	78B	PR D17 62	C. Baltay <i>et al.</i>	(COLU, BING)
CHABAUD	78	NP B145 349	V. Chabaud <i>et al.</i>	(CERN, MPIM)
FERRERSORIA	78	PL 74B 287	A. Ferrer Soria <i>et al.</i>	(ORSAY, CERN, CDEF+)
HYAMS	78	NP B146 303	B.D. Hyams <i>et al.</i>	(CERN, MPIM, ATEN)
MARTIN	78D	PL 74B 417	A.D. Martin <i>et al.</i>	(DURH, GEVA) JP
MAY	77	PR D16 1983	E.N. May <i>et al.</i>	(ROCH, CORN)
FORINO	76	NC 35A 465	A. Forino <i>et al.</i>	(BGNA, FIRZ, GENO, MILA+)
MARGULIE	76	PR D14 667	M. Margulies <i>et al.</i>	(BNL, CUNY)
EMMS	75	PL 58B 117	M.J. Emms <i>et al.</i>	(BIRM, DURH, RHEL) JP
WAGNER	75	PL 58B 201	F. Wagner, M. Tabak, D.M. Chew	(LBL) JP
DIAZ	74	PRL 32 260	J. Diaz <i>et al.</i>	(CASE, CMU)
KARSHON	74	PRL 32 852	U. Karshon <i>et al.</i>	(REHO)
ANTIPOV	73	NP B63 175	Y.M. Antipov <i>et al.</i>	(CERN, SERP) JP
ANTIPOV	73C	NP B63 153	Y.M. Antipov <i>et al.</i>	(CERN, SERP) JP
CHALOUPKA	73	PL 44B 211	V. Chaloupka <i>et al.</i>	(CERN)
CONFORTO	73	PL 45B 154	G. Conforto <i>et al.</i>	(EFI, FNAL, TNTO+)
DEFOIX	73	PL 43B 141	C. Defoix <i>et al.</i>	(CDEF)
EISENSTEIN	73	PR D7 278	L. Eisenstein <i>et al.</i>	(ILL)
KEY	73	PRL 30 503	A.W. Key <i>et al.</i>	(TNTO, EFI, FNAL, WISC)
TOET	73	NP B63 248	D.Z. Toet <i>et al.</i>	(NIJM, BONN, DURH, TORI)
DAMERI	72	NC 9A 1	M. Dameri <i>et al.</i>	(GENO, MILA, SACL)
EISENBERG	72	PR D5 15	Y. Eisenberg <i>et al.</i>	(REHO, SLAC, TELA)
ESPIGAT	72	NP B36 93	P. Espigat <i>et al.</i>	(CERN, CDEF)
FOLEY	72	PR D6 747	K.J. Foley <i>et al.</i>	(BNL, CUNY)
ALSTON-...	71	PL 34B 156	M. Alston-Garnjost <i>et al.</i>	(LRL)
BARNHAM	71	PRL 26 1494	K.W.J. Barnham <i>et al.</i>	(LBL)
BINNIE	71	PL 36B 257	D.M. Binnie <i>et al.</i>	(LOIC, SHMP)
BOWEN	71	PRL 26 1663	D.R. Bowen <i>et al.</i>	(NEAS, STON)
GRAYER	71	PL 34B 333	G. Grayer <i>et al.</i>	(CERN, MPIM)
ABRAMOVI...	70B	NP B23 466	M. Abramovich <i>et al.</i>	(CERN) JP
ALSTON-...	70	PL 33B 607	M. Alston-Garnjost <i>et al.</i>	(LRL)
BOECKMANN	70	NP B16 221	K. Boeckmann <i>et al.</i>	(BONN, DURH, NIJM+)
ASCOLI	68	PRL 20 1321	G. Ascoli <i>et al.</i>	(ILL) JP
BOESEBECK	68	NP B4 501	K. Boesebeck <i>et al.</i>	(AACH, BERL, CERN)
CHUNG	68	PR 165 1491	S.U. Chung <i>et al.</i>	(LRL)
CONTE	67	NC 51A 175	F. Conte <i>et al.</i>	(GENO, HAMB, MILA, SACL)