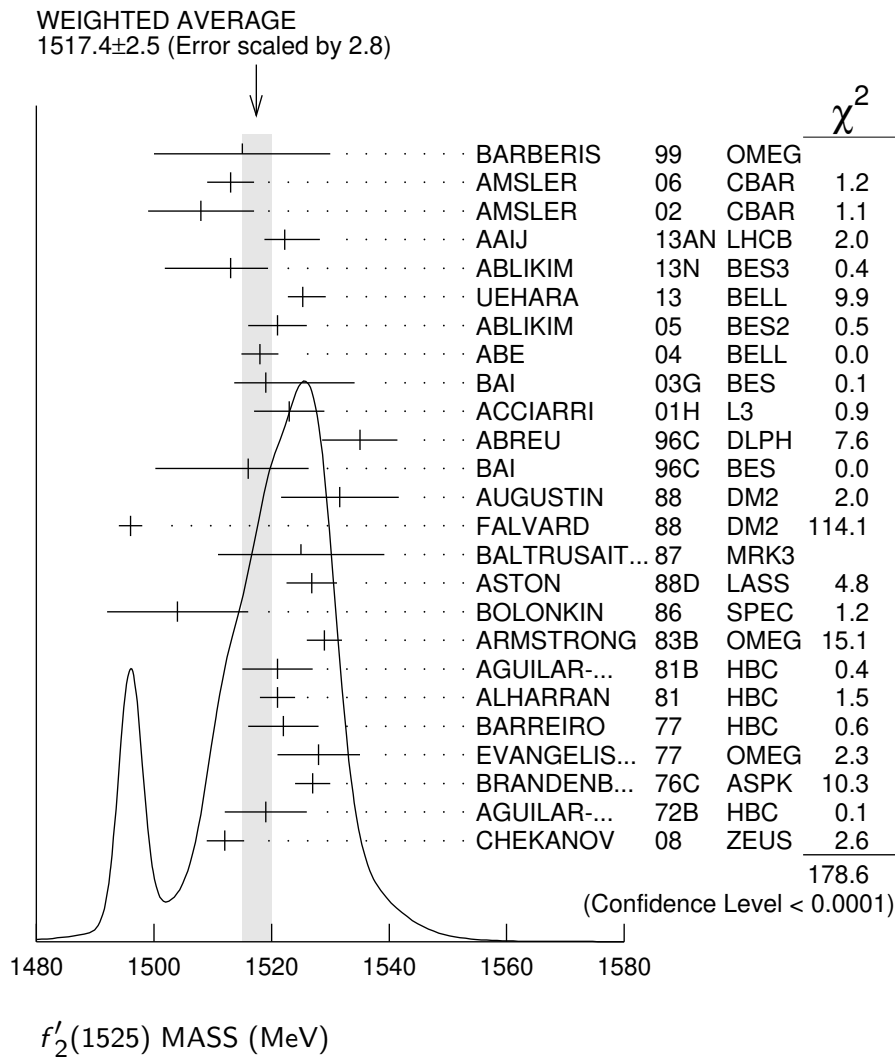


# $f'_2(1525)$

$$I^G(J^{PC}) = 0^+(2^{++})$$

## $f'_2(1525)$ MASS

VALUE (MeV)                      DOCUMENT ID  
**1517.4±2.5 OUR AVERAGE** Includes data from the 6 datablocks that follow this one.  
 Error includes scale factor of 2.8. See the ideogram below.



### PRODUCED BY PION BEAM

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

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

1521±13	TIKHOMIROV	03	SPEC	40.0	$\pi^- C \rightarrow K_S^0 K_S^0 K_L^0 X$
1547 <sup>+10</sup> <sub>-2</sub>	<sup>1</sup> LONGACRE	86	MPS	22	$\pi^- p \rightarrow K_S^0 K_S^0 n$

1496 <sup>+9</sup> <sub>-8</sub>		<sup>2</sup> CHABAUD	81	ASPK	6 $\pi^- p \rightarrow K^+ K^- n$
1497 <sup>+8</sup> <sub>-9</sub>		CHABAUD	81	ASPK	18.4 $\pi^- p \rightarrow K^+ K^- n$
1492 $\pm$ 29		GORLICH	80	ASPK	17 $\pi^- p$ polarized $\rightarrow K^+ K^- n$
1502 $\pm$ 25		<sup>3</sup> CORDEN	79	OMEG	12–15 $\pi^- p \rightarrow \pi^+ \pi^- n$
1480	14	CRENNELL	66	HBC	6.0 $\pi^- p \rightarrow K_S^0 K_S^0 n$

<sup>1</sup> From a partial-wave analysis of data using a K-matrix formalism with 5 poles.

<sup>2</sup> CHABAUD 81 is a reanalysis of PAWLICKI 77 data.

<sup>3</sup> From an amplitude analysis where the  $f_2'(1525)$  width and elasticity are in complete disagreement with the values obtained from  $K\bar{K}$  channel, making the solution dubious.

## PRODUCED BY $K^\pm$ BEAM

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

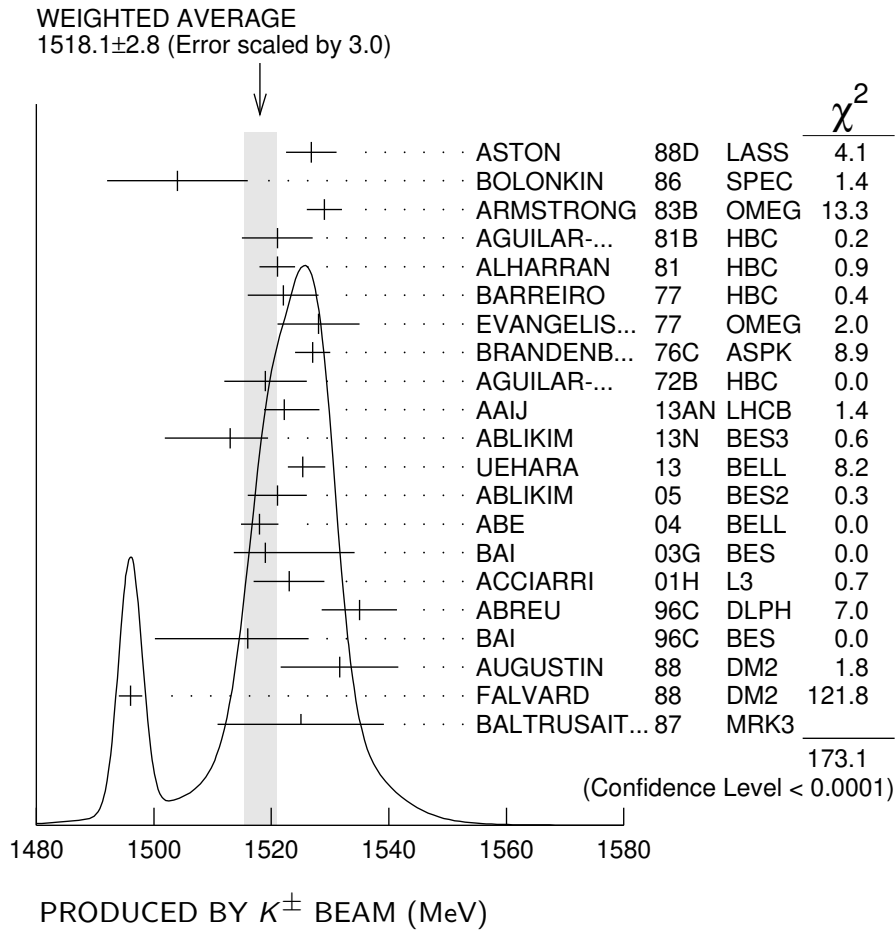
**1518.1 $\pm$  2.8 OUR AVERAGE** Includes data from the datablock that follows this one. Error includes scale factor of 3.0. See the ideogram below.

1526.8 $\pm$ 4.3		ASTON	88D	LASS	11 $K^- p \rightarrow K_S^0 K_S^0 \Lambda$
1504 $\pm$ 12		BOLONKIN	86	SPEC	40 $K^- p \rightarrow K_S^0 K_S^0 Y$
1529 $\pm$ 3		ARMSTRONG	83B	OMEG	18.5 $K^- p \rightarrow K^- K^+ \Lambda$
1521 $\pm$ 6	650	AGUILAR-...	81B	HBC	4.2 $K^- p \rightarrow \Lambda K^+ K^-$
1521 $\pm$ 3	572	ALHARRAN	81	HBC	8.25 $K^- p \rightarrow \Lambda K\bar{K}$
1522 $\pm$ 6	123	BARREIRO	77	HBC	4.15 $K^- p \rightarrow \Lambda K_S^0 K_S^0$
1528 $\pm$ 7	166	EVANGELIS...	77	OMEG	10 $K^- p \rightarrow K^+ K^- (\Lambda, \Sigma)$
1527 $\pm$ 3	120	BRANDENB...	76C	ASPK	13 $K^- p \rightarrow K^+ K^- (\Lambda, \Sigma)$
1519 $\pm$ 7	100	AGUILAR-...	72B	HBC	3.9,4.6 $K^- p \rightarrow K\bar{K} (\Lambda, \Sigma)$

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

1514 $\pm$ 8	61	BINON	07	GAMS	32.5 $K^- p \rightarrow \eta\eta (\Lambda/\Sigma^0)$
1513 $\pm$ 10		<sup>1</sup> BARKOV	99	SPEC	40 $K^- p \rightarrow K_S^0 K_S^0 y$

<sup>1</sup> Systematic errors not estimated.



**PRODUCED IN  $e^+e^-$  ANNIHILATION AND PARTICLE DECAYS**

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

**1514  $\pm \frac{5}{4}$  OUR AVERAGE** Error includes scale factor of 3.8. See the ideogram below.

1522.2 ± 2.8 <sup>+5.3</sup> / <sub>-2.0</sub>		AAIJ	13AN LHCB	$\bar{B}_s^0 \rightarrow J/\psi K^+ K^-$
1513 ± 5 <sup>+4</sup> / <sub>-10</sub>	5.5k	<sup>1</sup> ABLIKIM	13N BES3	$e^+e^- \rightarrow J/\psi \rightarrow \gamma\eta\eta$
1525.3 <sup>+1.2</sup> / <sub>-1.4</sub> <sup>+3.7</sup> / <sub>-2.1</sub>		UEHARA	13 BELL	$\gamma\gamma \rightarrow K_S^0 K_S^0$
1521 ± 5		ABLIKIM	05 BES2	$J/\psi \rightarrow \phi K^+ K^-$
1518 ± 1 ± 3		ABE	04 BELL	$10.6 e^+e^- \rightarrow e^+e^- K^+ K^-$
1519 ± 2 <sup>+15</sup> / <sub>-5</sub>		BAI	03G BES	$J/\psi \rightarrow \gamma K \bar{K}$
1523 ± 6	331	<sup>2</sup> ACCIARRI	01H L3	$91, 183-209 e^+e^- \rightarrow e^+e^- K_S^0 K_S^0$
1535 ± 5 ± 4		ABREU	96C DLPH	$Z^0 \rightarrow K^+ K^- + X$
1516 ± 5 <sup>+9</sup> / <sub>-15</sub>		BAI	96C BES	$J/\psi \rightarrow \gamma K^+ K^-$

1531.6 ± 10.0		AUGUSTIN	88	DM2	$J/\psi \rightarrow \gamma K^+ K^-$
1496 ± 2		<sup>3</sup> FALVARD	88	DM2	$J/\psi \rightarrow \phi K^+ K^-$
1525 ± 10 ± 10		BALTRUSAIT..87	MRK3		$J/\psi \rightarrow \gamma K^+ K^-$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
1532 ± 3 ± 6	644	<sup>4,5</sup> DOBBS	15		$J/\psi \rightarrow \gamma K^+ K^-$
1557 ± 9 ± 3	113	<sup>4,5</sup> DOBBS	15		$\psi(2S) \rightarrow \gamma K^+ K^-$
1526 ± 7	29	<sup>6</sup> LEES	14H	BABR	$e^+ e^- \rightarrow K_S^0 K_S^0 K^+ K^- \gamma$
1523 ± 5	870	<sup>7</sup> SCHEGELSKY	06A	RVUE	$\gamma\gamma \rightarrow K_S^0 K_S^0$
1515 ± 5		<sup>8</sup> FALVARD	88	DM2	$J/\psi \rightarrow \phi K^+ K^-$

<sup>1</sup> From partial wave analysis including all possible combinations of  $0^{++}$ ,  $2^{++}$ , and  $4^{++}$  resonances.

<sup>2</sup> Supersedes ACCIARRI 95J.

<sup>3</sup> From an analysis including interference with  $f_0(1710)$ .

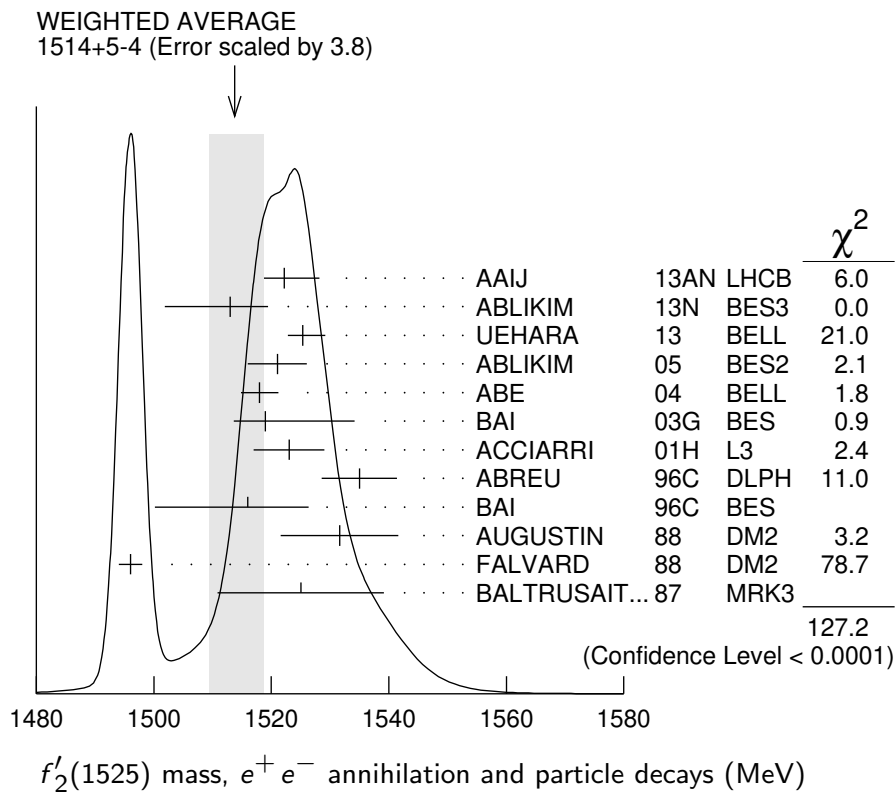
<sup>4</sup> Using CLEO-c data but not authored by the CLEO Collaboration.

<sup>5</sup> From a fit to a Breit-Wigner line shape with fixed  $\Gamma = 73$  MeV.

<sup>6</sup> From a fit to a Breit-Wigner line shape plus a second-order polynomial function. Systematic errors not evaluated.

<sup>7</sup> From analysis of L3 data at 91 and 183–209 GeV.

<sup>8</sup> From an analysis ignoring interference with  $f_0(1710)$ .



**PRODUCED IN  $\bar{p}p$  ANNIHILATION**

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.

**1512 ± 4 OUR AVERAGE**

1513 ± 4	AMSLER	06	CBAR	0.9 $\bar{p}p \rightarrow K^+ K^- \pi^0$
1508 ± 9	<sup>1</sup> AMSLER	02	CBAR	0.9 $\bar{p}p \rightarrow \pi^0 \eta \eta, \pi^0 \pi^0 \pi^0$

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

1495.0 ± 1.1 ± 8.1	<sup>2</sup> ALBRECHT	20	RVUE	0.9 $\bar{p}p \rightarrow \pi^0 \pi^0 \eta, \pi^0 \eta \eta,$ $\pi^0 K^+ K^-$
1530 ± 12	<sup>3</sup> ANISOVICH	09	RVUE	0.0 $\bar{p}p, \pi N$

<sup>1</sup> T-matrix pole.<sup>2</sup> T-matrix pole, 4 poles, 4 channels, including scattering data from HYAMS 75 ( $\pi\pi$ ), LONGACRE 86 ( $K\bar{K}$ ), BINON 83 ( $\eta\eta$ ).<sup>3</sup> 4-poles, 5-channel K matrix fit.**CENTRAL PRODUCTION**

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.

<b>1515 ± 15</b>	BARBERIS	99	OMEG	450 $pp \rightarrow p_s p_f K^+ K^-$
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**PRODUCED IN  $e p$  COLLISIONS**

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

<b>1512 ± 3<sup>+1.4</sup><sub>-0.5</sub></b>	<sup>1</sup> CHEKANOV	08	ZEUS	$e p \rightarrow K_S^0 K_S^0 X$
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• • • We do not use the following data for averages, fits, limits, etc. • • •

1537 <sup>+9</sup> <sub>-8</sub>	84	<sup>2</sup> CHEKANOV	04	ZEUS	$e p \rightarrow K_S^0 K_S^0 X$
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<sup>1</sup> In the SU(3) based model with a specific interference pattern of the  $f_2(1270)$ ,  $a_2^0(1320)$ , and  $f_2'(1525)$  mesons incoherently added to the  $f_0(1710)$  and non-resonant background.<sup>2</sup> Systematic errors not estimated. **$f_2'(1525)$  WIDTH**

VALUE (MeV)	DOCUMENT ID	COMMENT
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**86 ± 5 OUR FIT** Error includes scale factor of 2.2.

<b>86.9<sup>+2.3</sup><sub>-2.1</sub></b>	PDG	18	Average of width measurements
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**PRODUCED BY PION BEAM**

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
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**86.9<sup>+2.3</sup><sub>-2.1</sub> OUR AVERAGE** Includes data from the 5 datablocks that follow this one. Error includes scale factor of 1.4. See the ideogram below.

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

102 ± 42	TIKHOMIROV	03	SPEC	40.0 $\pi^- C \rightarrow K_S^0 K_S^0 K_L^0 X$
108 <sup>+5</sup> <sub>-2</sub>	<sup>1</sup> LONGACRE	86	MPS	22 $\pi^- p \rightarrow K_S^0 K_S^0 n$

69	+22 -16	<sup>2</sup> CHABAUD	81	ASPK	$6 \pi^- p \rightarrow K^+ K^- n$
137	+23 -21	CHABAUD	81	ASPK	$18.4 \pi^- p \rightarrow K^+ K^- n$
150	+83 -50	GORLICH	80	ASPK	$17 \pi^- p \text{ polarized} \rightarrow K^+ K^- n$
165	$\pm 42$	<sup>3</sup> CORDEN	79	OMEG	$12-15 \pi^- p \rightarrow \pi^+ \pi^- n$
92	+39 -22	<sup>4</sup> POLYCHRO...	79	STRC	$7 \pi^- p \rightarrow n K_S^0 K_S^0$

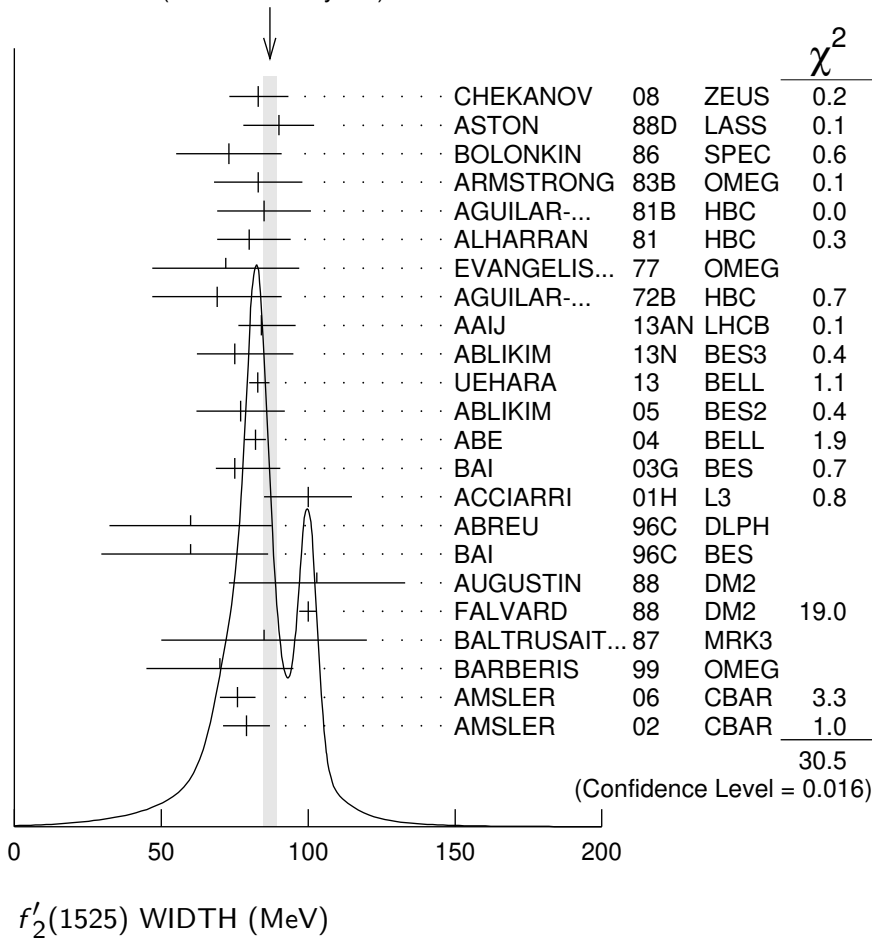
<sup>1</sup> From a partial-wave analysis of data using a K-matrix formalism with 5 poles.

<sup>2</sup> CHABAUD 81 is a reanalysis of PAWLICKI 77 data.

<sup>3</sup> From an amplitude analysis where the  $f_2'(1525)$  width and elasticity are in complete disagreement with the values obtained from  $K\bar{K}$  channel, making the solution dubious.

<sup>4</sup> From a fit to the  $D$  with  $f_2(1270)$ - $f_2'(1525)$  interference. Mass fixed at 1516 MeV.

WEIGHTED AVERAGE  
86.9+2.3-2.1 (Error scaled by 1.4)



**PRODUCED BY  $K^\pm$  BEAM**

VALUE (MeV)    EVTS    DOCUMENT ID    TECN    COMMENT

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

**82 ± 6 OUR AVERAGE**

90 ± 12	ASTON	88D	LASS	11	$K^- p \rightarrow K_S^0 K_S^0 \Lambda$
73 ± 18	BOLONKIN	86	SPEC	40	$K^- p \rightarrow K_S^0 K_S^0 Y$

83 ± 15		ARMSTRONG	83B	OMEG	18.5	$K^- p \rightarrow K^- K^+ \Lambda$
85 ± 16	650	AGUILAR-...	81B	HBC	4.2	$K^- p \rightarrow \Lambda K^+ K^-$
80 <sup>+14</sup> <sub>-11</sub>	572	ALHARRAN	81	HBC	8.25	$K^- p \rightarrow \Lambda K \bar{K}$
72 ± 25	166	EVANGELIS...	77	OMEG	10	$K^- p \rightarrow K^+ K^- (\Lambda, \Sigma)$
69 ± 22	100	AGUILAR-...	72B	HBC	3.9, 4.6	$K^- p \rightarrow K \bar{K} (\Lambda, \Sigma)$

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

92 <sup>+25</sup> <sub>-16</sub>	61	BINON	07	GAMS	32.5	$K^- p \rightarrow \eta \eta (\Lambda / \Sigma^0)$
75 ± 20		<sup>1</sup> BARKOV	99	SPEC	40	$K^- p \rightarrow K_S^0 K_S^0 \gamma$
62 <sup>+19</sup> <sub>-14</sub>	123	BARREIRO	77	HBC	4.15	$K^- p \rightarrow \Lambda K_S^0 K_S^0$
61 ± 8	120	BRANDENB...	76C	ASPK	13	$K^- p \rightarrow K^+ K^- (\Lambda, \Sigma)$

<sup>1</sup> Systematic errors not estimated.

## PRODUCED IN $e^+ e^-$ ANNIHILATION AND PARTICLE DECAYS

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

**89.2<sup>+3.4</sup><sub>-3.0</sub> OUR AVERAGE** Error includes scale factor of 1.8. See the ideogram below.

84 ± 6 <sup>+10</sup> <sub>-5</sub>		AAIJ	13AN	LHCB		$\bar{B}_s^0 \rightarrow J/\psi K^+ K^-$
75 <sup>+12</sup> <sub>-10</sub> <sup>+16</sup> <sub>-8</sub>	5.5k	<sup>1</sup> ABLIKIM	13N	BES3		$e^+ e^- \rightarrow J/\psi \rightarrow \gamma \eta \eta$
82.9 <sup>+2.1</sup> <sub>-2.2</sub> <sup>+3.3</sup> <sub>-2.0</sub>		UEHARA	13	BELL		$\gamma \gamma \rightarrow K_S^0 K_S^0$
77 ± 15		ABLIKIM	05	BES2		$J/\psi \rightarrow \phi K^+ K^-$
82 ± 2 ± 3		ABE	04	BELL	10.6	$e^+ e^- \rightarrow e^+ e^- K^+ K^-$
75 ± 4 <sup>+15</sup> <sub>-5</sub>		BAI	03G	BES		$J/\psi \rightarrow \gamma K \bar{K}$
100 ± 15	331	<sup>2</sup> ACCIARRI	01H	L3	91, 183-209	$e^+ e^- \rightarrow e^+ e^- K_S^0 K_S^0$
60 ± 20 ± 19		ABREU	96C	DLPH		$Z^0 \rightarrow K^+ K^- + X$
60 ± 23 <sup>+13</sup> <sub>-20</sub>		BAI	96C	BES		$J/\psi \rightarrow \gamma K^+ K^-$
103 ± 30		AUGUSTIN	88	DM2		$J/\psi \rightarrow \gamma K^+ K^-$
100 ± 3		<sup>3</sup> FALVARD	88	DM2		$J/\psi \rightarrow \phi K^+ K^-$
85 ± 35		BALTRUSAIT..	87	MRK3		$J/\psi \rightarrow \gamma K^+ K^-$

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

37 ± 12	29	<sup>4</sup> LEES	14H	BABR		$e^+ e^- \rightarrow K_S^0 K_S^0 K^+ K^- \gamma$
104 ± 10	870	<sup>5</sup> SCHEGELSKY	06A	RVUE		$\gamma \gamma \rightarrow K_S^0 K_S^0$
62 ± 10		<sup>6</sup> FALVARD	88	DM2		$J/\psi \rightarrow \phi K^+ K^-$

<sup>1</sup> From partial wave analysis including all possible combinations of  $0^{++}$ ,  $2^{++}$ , and  $4^{++}$  resonances.

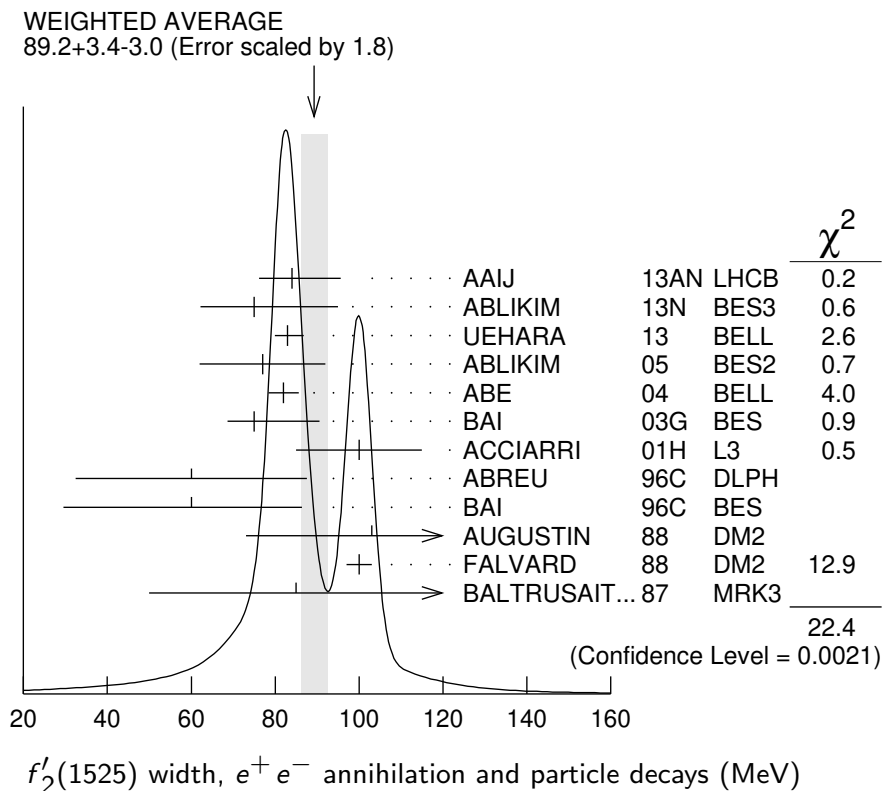
<sup>2</sup> Supersedes ACCIARRI 95J.

<sup>3</sup> From an analysis including interference with  $f_0(1710)$ .

<sup>4</sup> From a fit to a Breit-Wigner line shape plus a second-order polynomial function. Systematic errors not evaluated.

<sup>5</sup> From analysis of L3 data at 91 and 183–209 GeV.

<sup>6</sup> From an analysis ignoring interference with  $f_0(1710)$ .



### PRODUCED IN $\bar{p}p$ ANNIHILATION

VALUE (MeV) \_\_\_\_\_ DOCUMENT ID \_\_\_\_\_ TECN \_\_\_\_\_ COMMENT \_\_\_\_\_

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

#### 77 ± 5 OUR AVERAGE

76 ± 6 AMSLER 06 CBAR 0.9  $\bar{p}p \rightarrow K^+ K^- \pi^0$   
 79 ± 8 <sup>1</sup> AMSLER 02 CBAR 0.9  $\bar{p}p \rightarrow \pi^0 \eta \eta, \pi^0 \pi^0 \pi^0$

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

104.8 ± 0.9 ± 9.8 <sup>2</sup> ALBRECHT 20 RVUE 0.9  $\bar{p}p \rightarrow \pi^0 \pi^0 \eta, \pi^0 \eta \eta, \pi^0 K^+ K^-$

128 ± 20 <sup>3</sup> ANISOVICH 09 RVUE 0.0  $\bar{p}p, \pi N$

<sup>1</sup> T-matrix pole.

<sup>2</sup> T-matrix pole, 4 poles, 4 channels, including scattering data from HYAMS 75 ( $\pi\pi$ ), LONGACRE 86 ( $K\bar{K}$ ), BINON 83 ( $\eta\eta$ ).

<sup>3</sup> K-matrix, 4-poles, 5-channel fit.

### CENTRAL PRODUCTION

VALUE (MeV) \_\_\_\_\_ DOCUMENT ID \_\_\_\_\_ TECN \_\_\_\_\_ COMMENT \_\_\_\_\_

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

70 ± 25 BARBERIS 99 OMEG 450  $pp \rightarrow p_s p_f K^+ K^-$

### PRODUCED IN $e p$ COLLISIONS

VALUE (MeV) \_\_\_\_\_ EVTS \_\_\_\_\_ DOCUMENT ID \_\_\_\_\_ TECN \_\_\_\_\_ COMMENT \_\_\_\_\_

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

83 ± 9<sup>+5</sup><sub>-4</sub> <sup>1</sup> CHEKANOV 08 ZEUS  $e p \rightarrow K_S^0 K_S^0 X$



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

50<sup>+34</sup><sub>-22</sub> 84<sup>2</sup> CHEKANOV 04 ZEUS  $e p \rightarrow K_S^0 K_S^0 X$

<sup>1</sup>In the SU(3) based model with a specific interference pattern of the  $f_2(1270)$ ,  $a_2^0(1320)$ , and  $f_2'(1525)$  mesons incoherently added to the  $f_0(1710)$  and non-resonant background.

<sup>2</sup>Systematic errors not estimated.

### $f_2'(1525)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )	Scale factor
$\Gamma_1$ $K\bar{K}$	$(87.6 \pm 2.2) \%$	1.1
$\Gamma_2$ $\eta\eta$	$(11.6 \pm 2.2) \%$	1.1
$\Gamma_3$ $\pi\pi$	$(8.3 \pm 1.6) \times 10^{-3}$	
$\Gamma_4$ $K\bar{K}^*(892) + \text{c.c.}$		
$\Gamma_5$ $\pi K\bar{K}$		
$\Gamma_6$ $\pi\pi\eta$		
$\Gamma_7$ $\pi^+\pi^+\pi^-\pi^-$		
$\Gamma_8$ $\gamma\gamma$	$(9.5 \pm 1.1) \times 10^{-7}$	1.1

### CONSTRAINED FIT INFORMATION

An overall fit to the total width, 2 partial widths, a combination of partial widths obtained from integrated cross sections, and 3 branching ratios uses 17 measurements and one constraint to determine 5 parameters. The overall fit has a  $\chi^2 = 18.2$  for 13 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients  $\langle \delta p_i \delta p_j \rangle / (\delta p_i \cdot \delta p_j)$ , in percent, from the fit to parameters  $p_i$ , including 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.

$x_2$	-100			
$x_3$	-6	-1		
$x_8$	-19	19	1	
$\Gamma$	-4	4	0	-44
	$x_1$	$x_2$	$x_3$	$x_8$

Mode	Rate (MeV)	Scale factor
$\Gamma_1$ $K\bar{K}$	$75 \pm 4$	1.8
$\Gamma_2$ $\eta\eta$	$9.9 \pm 1.9$	1.1
$\Gamma_3$ $\pi\pi$	$0.71 \pm 0.14$	1.1
$\Gamma_8$ $\gamma\gamma$	$(8.2 \pm 0.9) \times 10^{-5}$	

## $f_2'(1525)$ PARTIAL WIDTHS

### $\Gamma(K\bar{K})$ $\Gamma_1$

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
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**$75 \pm 4$  OUR FIT** Error includes scale factor of 1.8.

$63^{+6}_{-5}$	<sup>1</sup> LONGACRE	86	MPS	22 $\pi^- p \rightarrow K_S^0 K_S^0 n$
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<sup>1</sup> From a partial-wave analysis of data using a K-matrix formalism with 5 poles.

### $\Gamma(\eta\eta)$ $\Gamma_2$

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
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**$9.9 \pm 1.9$  OUR FIT** Error includes scale factor of 1.1.

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

$5.0 \pm 0.8$	870	<sup>1</sup> SCHEGELSKY 06A	RVUE	$\gamma\gamma \rightarrow K_S^0 K_S^0$
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$24^{+3}_{-1}$	2	LONGACRE	86	MPS	22 $\pi^- p \rightarrow K_S^0 K_S^0 n$
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<sup>1</sup> From analysis of L3 data at 91 and 183–209 GeV, using  $\Gamma(f_2'(1525) \rightarrow K\bar{K}) = 68$  MeV and SU(3) relations.

<sup>2</sup> From a partial-wave analysis of data using a K-matrix formalism with 5 poles.

### $\Gamma(\pi\pi)$ $\Gamma_3$

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
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**$0.71 \pm 0.14$  OUR FIT** Error includes scale factor of 1.1.

$1.4^{+1.0}_{-0.5}$	1	LONGACRE	86	MPS	22 $\pi^- p \rightarrow K_S^0 K_S^0 n$
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• • • We do not use the following data for averages, fits, limits, etc. • • •

$0.2^{+1.0}_{-0.2}$	870	2	SCHEGELSKY 06A	RVUE	$\gamma\gamma \rightarrow K_S^0 K_S^0$
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<sup>1</sup> From a partial-wave analysis of data using a K-matrix formalism with 5 poles.

<sup>2</sup> From analysis of L3 data at 91 and 183–209 GeV, using  $\Gamma(f_2'(1525) \rightarrow K\bar{K}) = 68$  MeV and SU(3) relations.

### $\Gamma(\gamma\gamma)$ $\Gamma_8$

VALUE (keV)	EVTS	DOCUMENT ID	TECN	COMMENT
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**$0.082 \pm 0.009$  OUR FIT**

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

$0.13 \pm 0.03$	870	1	SCHEGELSKY 06A	RVUE	$\gamma\gamma \rightarrow K_S^0 K_S^0$
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<sup>1</sup> From analysis of L3 data at 91 and 183–209 GeV, using  $\Gamma(f_2'(1525) \rightarrow K\bar{K}) = 68$  MeV and SU(3) relations.

### $\Gamma(K\bar{K})/\Gamma_{\text{total}}$ $\Gamma_1/\Gamma$

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

$0.746 \pm 0.002^{+0.166}_{-0.162}$	1	ALBRECHT	20	RVUE	0.9 $\bar{p} p \rightarrow \pi^0 \pi^0 \eta,$ $\pi^0 \eta \eta, \pi^0 K^+ K^-$
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<sup>1</sup> Residue from T-matrix pole, 4 poles, 4 channels, including scattering data from HYAMS 75 ( $\pi\pi$ ), LONGACRE 86 ( $K\bar{K}$ ), BINON 83 ( $\eta\eta$ ).

### $f_2'(1525) \Gamma(i)\Gamma(\gamma\gamma)/\Gamma(\text{total})$

$\Gamma(K\bar{K}) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$						$\Gamma_1\Gamma_8/\Gamma$
VALUE (keV)	EVTS	DOCUMENT ID	TECN	COMMENT		
<b>0.072 ± 0.007</b>						
<b>OUR FIT</b>						
<b>0.072 ± 0.007</b>						
<b>OUR AVERAGE</b>						
0.048	+0.067 -0.008	+0.108 -0.012	UEHARA	13	BELL	$\gamma\gamma \rightarrow K_S^0 K_S^0$
0.0564 ± 0.0048 ± 0.0116			ABE	04	BELL	$10.6 e^+e^- \rightarrow e^+e^- K^+K^-$
0.076 ± 0.006 ± 0.011	331	<sup>1</sup> ACCIARRI	01H	L3		$e^+e^- \rightarrow e^+e^- K_S^0 K_S^0$
0.067 ± 0.008 ± 0.015		<sup>2</sup> ALBRECHT	90G	ARG		$e^+e^- \rightarrow e^+e^- K^+K^-$
0.11 ± 0.03 -0.02	± 0.02	BEHREND	89C	CELL		$e^+e^- \rightarrow e^+e^- K_S^0 K_S^0$
0.10 ± 0.04 -0.03	+0.03 -0.02	BERGER	88	PLUT		$e^+e^- \rightarrow e^+e^- K_S^0 K_S^0$
0.12 ± 0.07 ± 0.04		<sup>2</sup> AIHARA	86B	TPC		$e^+e^- \rightarrow e^+e^- K^+K^-$
0.11 ± 0.02 ± 0.04		<sup>2</sup> ALTHOFF	83	TASS		$e^+e^- \rightarrow e^+e^- K\bar{K}$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●						
0.0314 ± 0.0050 ± 0.0077		<sup>3</sup> ALBRECHT	90G	ARG		$e^+e^- \rightarrow e^+e^- K^+K^-$
<sup>1</sup> Supersedes ACCIARRI 95J. From analysis of L3 data at 91 and 183–209 GeV,						
<sup>2</sup> Using an incoherent background.						
<sup>3</sup> Using a coherent background.						

### $f_2'(1525) \text{ BRANCHING RATIOS}$

$\Gamma(\eta\eta)/\Gamma_{\text{total}}$						$\Gamma_2/\Gamma$
VALUE	DOCUMENT ID	TECN	COMMENT			
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●						
0.059 ± 0.003 ± 0.026	<sup>1</sup> ALBRECHT	20	RVUE	0.9	$\bar{p}p \rightarrow \pi^0\pi^0\eta,$ $\pi^0\eta\eta, \pi^0 K^+K^-$	
seen	UEHARA	10A	BELL	10.6	$e^+e^- \rightarrow e^+e^- \eta\eta$	
0.10 ± 0.03	<sup>2</sup> PROKOSHKIN	91	GAM4	300	$\pi^- p \rightarrow \pi^- p \eta\eta$	
<sup>1</sup> Residue from T-matrix pole, 4 poles, 4 channels, including scattering data from HYAMS 75 ( $\pi\pi$ ), LONGACRE 86 ( $K\bar{K}$ ), BINON 83 ( $\eta\eta$ ).						
<sup>2</sup> Combining results of GAM4 with those of WA76 on $K\bar{K}$ central production and results of CBAL, MRK3 and DM2 on $J/\psi \rightarrow \gamma\eta\eta$ .						

$\Gamma(\eta\eta)/\Gamma(K\bar{K})$						$\Gamma_2/\Gamma_1$
VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT	
<b>0.132 ± 0.028</b>						
<b>OUR FIT</b>						
<b>0.115 ± 0.028</b>						
<b>OUR AVERAGE</b>						
0.119 ± 0.015 ± 0.036	61	<sup>1</sup> BINON	07	GAMS	32.5	$K^- p \rightarrow \eta\eta(\Lambda/\Sigma^0)$
0.11 ± 0.04		<sup>2</sup> PROKOSHKIN	91	GAM4	300	$\pi^- p \rightarrow \pi^- p \eta\eta$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●						
< 0.14	90	BARBERIS	00E		450	$pp \rightarrow p_f \eta\eta p_S$
< 0.50		BARNES	67	HBC	4.6, 5.0	$K^- p$
<sup>1</sup> Using the compilation of the cross sections for $f_2'(1525)$ production in $K^- p$ collisions from ASTON 88D.						
<sup>2</sup> Combining results of GAM4 with those of WA76 on $K\bar{K}$ central production and results of CBAL, MRK3 and DM2 on $J/\psi \rightarrow \gamma\eta\eta$ .						

$\Gamma(\pi\pi)/\Gamma_{\text{total}}$   $\Gamma_3/\Gamma$

VALUE (units  $10^{-2}$ )    CL%    DOCUMENT ID    TECN    COMMENT

**0.83 ± 0.16 OUR FIT**  
**0.75 ± 0.16 OUR AVERAGE**

0.7 ± 0.2		COSTA	80	OMEG	10 $\pi^- p \rightarrow K^+ K^- n$
2.7 $^{+7.1}_{-1.3}$		<sup>1</sup> GORLICH	80	ASPK	17,18 $\pi^- p$
0.75 ± 0.25		<sup>1,2</sup> MARTIN	79	RVUE	
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●					
3.4 ± 1.5 ± 1.0		<sup>3</sup> ALBRECHT	20	RVUE	0.9 $\bar{p} p \rightarrow \pi^0 \pi^0 \eta, \pi^0 \eta \eta, \pi^0 K^+ K^-$
< 6	95	AGUILAR-...	81B	HBC	4.2 $K^- p \rightarrow \Lambda K^+ K^-$
19 ± 3		CORDEN	79	OMEG	12–15 $\pi^- p \rightarrow \pi^+ \pi^- n$
< 4.5	95	BARREIRO	77	HBC	4.15 $K^- p \rightarrow \Lambda K_S^0 K_S^0$
1.2 ± 0.4		<sup>1</sup> PAWLICKI	77	SPEC	6 $\pi N \rightarrow K^+ K^- N$
< 6.3	90	BRANDENB...	76C	ASPK	13 $K^- p \rightarrow K^+ K^- (\Lambda, \Sigma)$
< 0.86		<sup>1</sup> BEUSCH	75B	OSPK	8.9 $\pi^- p \rightarrow K^0 \bar{K}^0 n$

<sup>1</sup> Assuming that the  $f_2'(1525)$  is produced by an one-pion exchange production mechanism.

<sup>2</sup> MARTIN 79 uses the PAWLICKI 77 data with different input value of the  $f_2'(1525) \rightarrow K\bar{K}$  branching ratio.

<sup>3</sup> Residue from T-matrix pole, 4 poles, 4 channels, including scattering data from HYAMS 75 ( $\pi\pi$ ), LONGACRE 86 ( $K\bar{K}$ ), BINON 83 ( $\eta\eta$ ).

$\Gamma(\pi\pi)/\Gamma(K\bar{K})$   $\Gamma_3/\Gamma_1$

VALUE    DOCUMENT ID    TECN    COMMENT

**0.0094 ± 0.0018 OUR FIT**  
**0.075 ± 0.035**

AUGUSTIN	87	DM2	$J/\psi \rightarrow \gamma \pi^+ \pi^-$
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$[\Gamma(K\bar{K}^*(892) + \text{c.c.}) + \Gamma(\pi K\bar{K})]/\Gamma(K\bar{K})$   $(\Gamma_4 + \Gamma_5)/\Gamma_1$

VALUE    CL%    DOCUMENT ID    TECN    COMMENT

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

< 0.35	95	AGUILAR-...	72B	HBC	3.9, 4.6 $K^- p$
< 0.4	67	AMMAR	67	HBC	

$\Gamma(\pi\pi\eta)/\Gamma(K\bar{K})$   $\Gamma_6/\Gamma_1$

VALUE    CL%    DOCUMENT ID    TECN    COMMENT

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

< 0.41	95	AGUILAR-...	72B	HBC	3.9, 4.6 $K^- p$
< 0.3	67	AMMAR	67	HBC	

$\Gamma(\pi^+ \pi^+ \pi^- \pi^-)/\Gamma(K\bar{K})$   $\Gamma_7/\Gamma_1$

VALUE    CL%    DOCUMENT ID    TECN    COMMENT

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

< 0.32	95	AGUILAR-...	72B	HBC	3.9, 4.6 $K^- p$
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