

$f_2'(1525)$

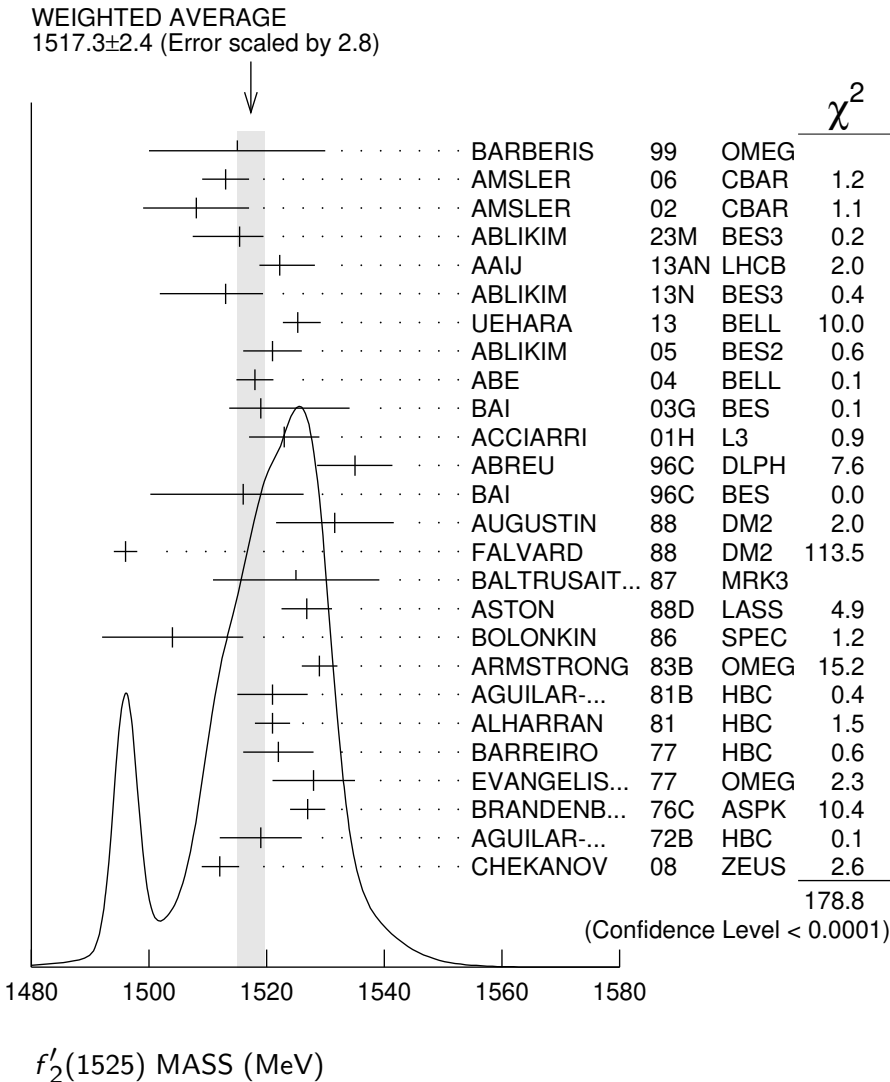
$I^G(J^{PC}) = 0^+(2^{++})$

$f_2'(1525)$ MASS

VALUE (MeV)

DOCUMENT ID

1517.3±2.4 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⁺¹⁰₋₂ ¹ LONGACRE 86 MPS 22 $\pi^- p \rightarrow K_S^0 K_S^0 n$

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1496^{+9}_{-8}		² CHABAUD	81	ASPK	$6 \pi^- p \rightarrow K^+ K^- n$
1497^{+8}_{-9}		CHABAUD	81	ASPK	$18.4 \pi^- p \rightarrow K^+ K^- n$
1492 ± 29		GORLICH	80	ASPK	$17 \pi^- p \text{ polarized} \rightarrow K^+ K^- n$
1502 ± 25		³ CORDEN	79	OMEG	$12\text{--}15 \pi^- p \rightarrow \pi^+ \pi^- n$
1480	14	CRENNELL	66	HBC	$6.0 \pi^- p \rightarrow K_S^0 K_S^0 n$

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

² CHABAUD 81 is a reanalysis of PAWLICKI 77 data.

³ 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)	EVS	DOCUMENT ID	TECN	COMMENT
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The data in this block is included in the average printed for a previous datablock.

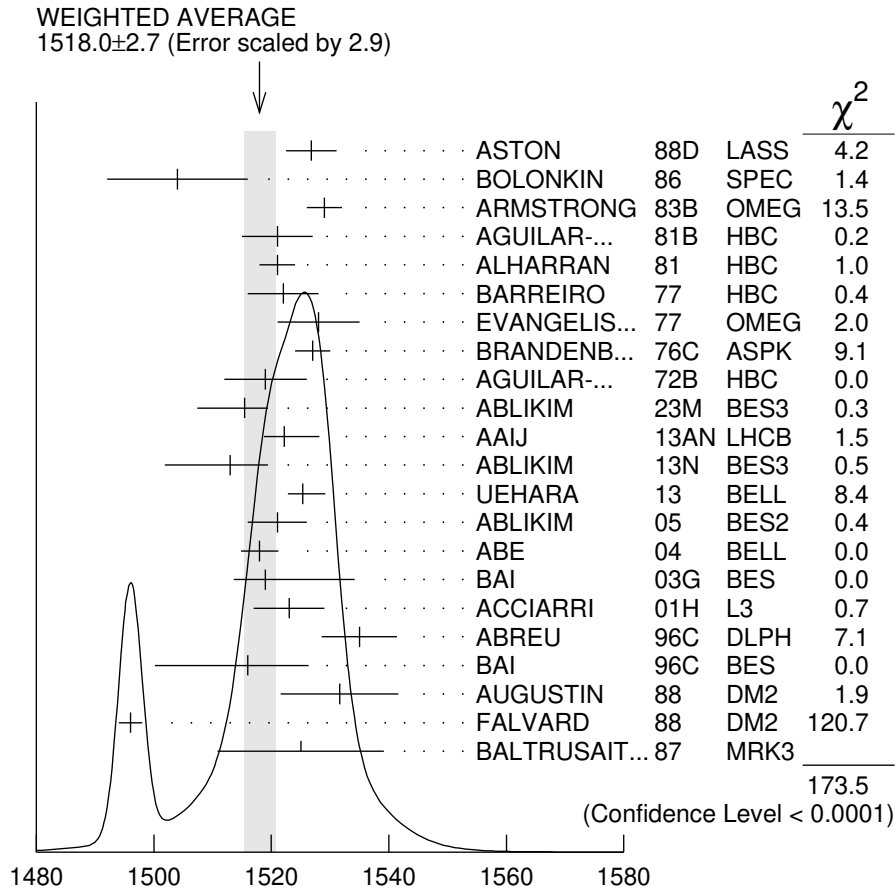
1518.0 ± 2.7 OUR AVERAGE Includes data from the datablock that follows this one. Error includes scale factor of 2.9. See the ideogram below.

1526.8 ± 4.3		ASTON	88D	LASS	$11 K^- p \rightarrow K_S^0 K_S^0 \Lambda$
1504 ± 12		BOLONKIN	86	SPEC	$40 K^- p \rightarrow K_S^0 K_S^0 Y$
1529 ± 3		ARMSTRONG	83B	OMEG	$18.5 K^- p \rightarrow K^- K^+ \Lambda$
1521 ± 6	650	AGUILAR-...	81B	HBC	$4.2 K^- p \rightarrow \Lambda K^+ K^-$
1521 ± 3	572	ALHARRAN	81	HBC	$8.25 K^- p \rightarrow \Lambda K \bar{K}$
1522 ± 6	123	BARREIRO	77	HBC	$4.15 K^- p \rightarrow \Lambda K_S^0 K_S^0$
1528 ± 7	166	EVANGELIS...	77	OMEG	$10 K^- p \rightarrow K^+ K^- (\Lambda, \Sigma)$
1527 ± 3	120	BRANDENB...	76C	ASPK	$13 K^- p \rightarrow K^+ K^- (\Lambda, \Sigma)$
1519 ± 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 ± 8	61	BINON	07	GAMS	$32.5 K^- p \rightarrow \eta \eta (\Lambda / \Sigma^0)$
1513 ± 10		¹ BARKOV	99	SPEC	$40 K^- p \rightarrow K_S^0 K_S^0 Y$

¹ Systematic errors not estimated.



PRODUCED BY $K^\pm$ BEAM (MeV)

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

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

1514 ± 4	OUR AVERAGE	Error includes scale factor of 3.6. See the ideogram below.		
1515.4 ± 2.5 ^{+3.2} _{-7.6}	126K	ABLIKIM	23M BES3	$J/\psi \rightarrow \gamma K_S^0 K_S^0 \pi^0$
1522.2 ± 2.8 ^{+5.3} _{-2.0}		AAIJ	13AN LHCB	$\bar{B}_s^0 \rightarrow J/\psi K^+ K^-$
1513 ± 5 ⁺⁴ ₋₁₀	5.5k	¹ ABLIKIM	13N BES3	$e^+e^- \rightarrow J/\psi \rightarrow \gamma \eta \eta$
1525.3 ^{+1.2} _{-1.4} ^{+3.7} _{-2.1}		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 ⁺¹⁵ ₋₅		BAI	03G BES	$J/\psi \rightarrow \gamma K \bar{K}$
1523 ± 6	331	² 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 ⁺⁹ ₋₁₅		BAI	96C BES	$J/\psi \rightarrow \gamma K^+ K^-$
1531.6 ± 10.0		AUGUSTIN	88 DM2	$J/\psi \rightarrow \gamma K^+ K^-$

1496 ± 2		³ 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. • • •					
1518 ± 3		⁴ KLEMP	22	RVUE	$J/\psi(1S) \rightarrow \gamma \pi^0 \pi^0,$ $\gamma K_S^0 K_S^0$
1503 ± 11		⁵ RODAS	22	RVUE	$J/\psi(1S) \rightarrow \gamma (\pi\pi, K\bar{K})$
1532 ± 3 ± 6	644	^{6,7} DOBBS	15		$J/\psi \rightarrow \gamma K^+ K^-$
1557 ± 9 ± 3	113	^{6,7} DOBBS	15		$\psi(2S) \rightarrow \gamma K^+ K^-$
1526 ± 7	29	⁸ LEES	14H	BABR	$e^+ e^- \rightarrow$ $K_S^0 K_S^0 K^+ K^- \gamma$
1523 ± 5	870	⁹ SCHEGELSKY	06A	RVUE	$\gamma\gamma \rightarrow K_S^0 K_S^0$
1515 ± 5		¹⁰ FALVARD	88	DM2	$J/\psi \rightarrow \phi K^+ K^-$

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

² Supersedes ACCIARRI 95J.

³ From an analysis including interference with $f_0(1710)$.

⁴ Fit of the tensor partial waves from BES3 in the multipole basis.

⁵ T-matrix pole from coupled channel K-matrix fit to data on $J/\psi \rightarrow \gamma \pi^0 \pi^0$ (ABLIKIM 15AE) and $J/\psi \rightarrow \gamma K_S^0 K_S^0$ (ABLIKIM 18AA).

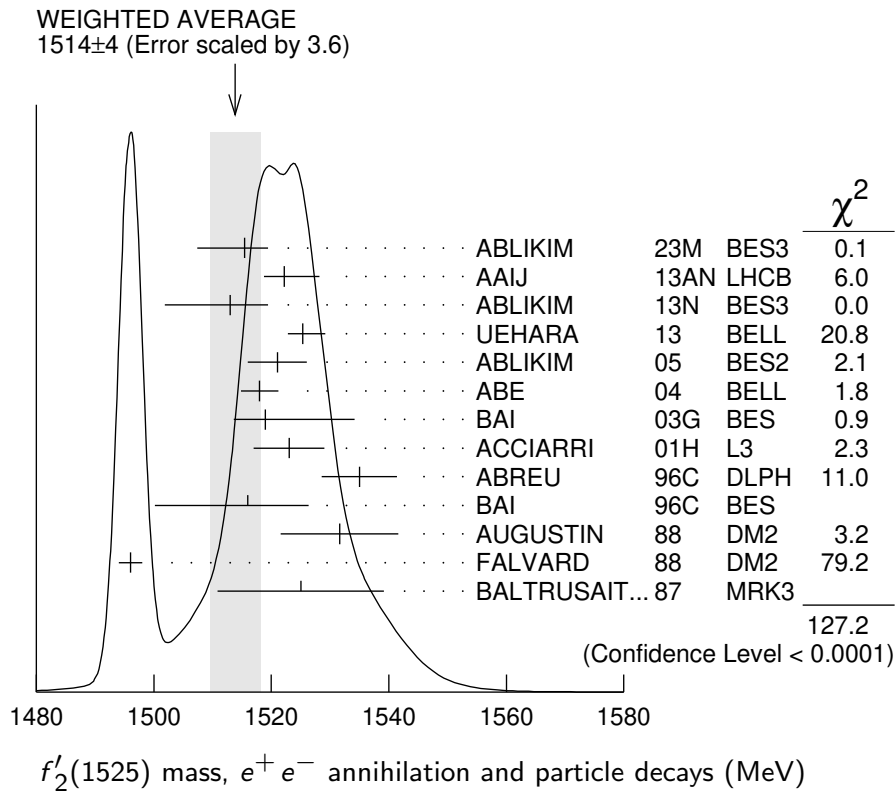
⁶ Using CLEO-c data but not authored by the CLEO Collaboration.

⁷ From a fit to a Breit-Wigner line shape with fixed $\Gamma = 73$ MeV.

⁸ From a fit to a Breit-Wigner line shape plus a second-order polynomial function. Systematic errors not evaluated.

⁹ From analysis of L3 data at 91 and 183–209 GeV.

¹⁰ 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 $\pm$ 4 OUR AVERAGE

1513 $\pm$ 4	AMSLER	06	CBAR 0.9 $\bar{p}p \rightarrow K^+ K^- \pi^0$
1508 $\pm$ 9	¹ 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 $\pm$ 1.1 $\pm$ 8.1	² ALBRECHT	20	RVUE 0.9 $\bar{p}p \rightarrow \pi^0 \pi^0 \eta, \pi^0 \eta \eta, \pi^0 K^+ K^-$
1530 $\pm$ 12	³ ANISOVICH	09	RVUE 0.0 $\bar{p}p, \pi N$

¹ T-matrix pole.

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

³ 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.

1515 $\pm$ 15	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.

1512 $\pm$ 3 $^{+1.4}_{-0.5}$	¹ 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 $^{+9}_{-8}$	84	² CHEKANOV	04	ZEUS $e p \rightarrow K_S^0 K_S^0 X$
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¹ 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.

² Systematic errors not estimated.

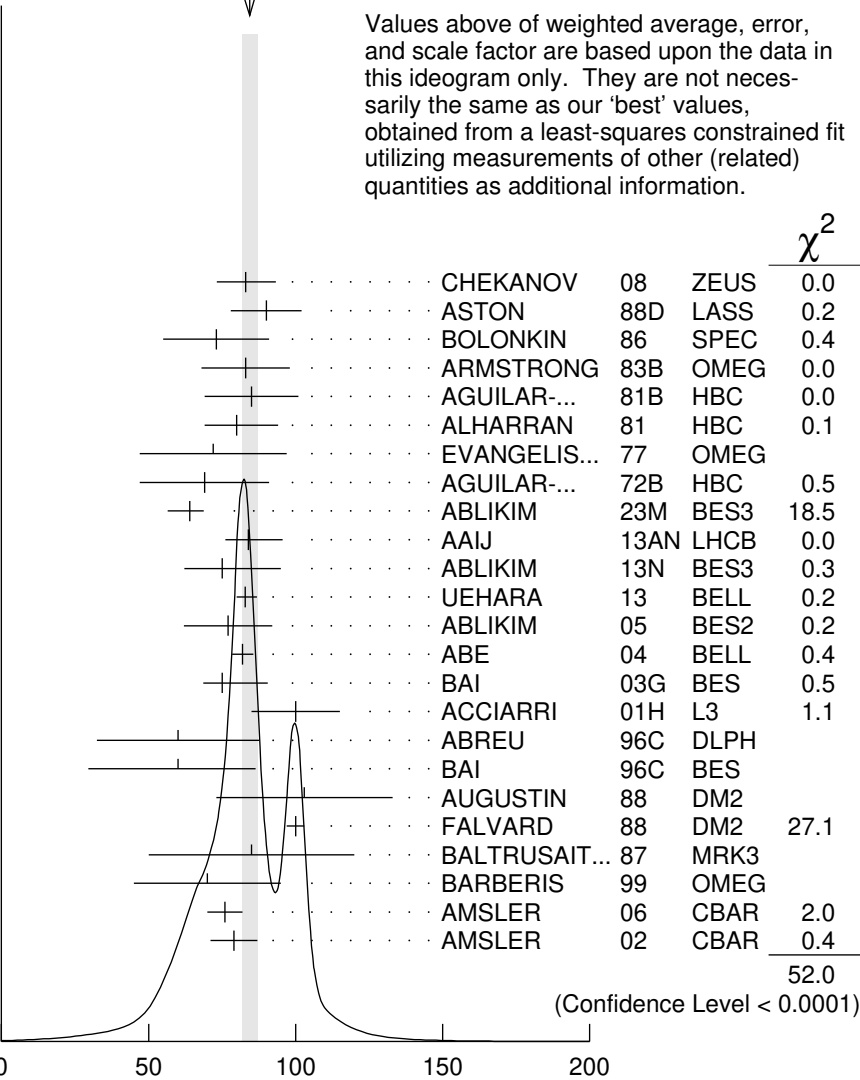
 $f_2'(1525)$ WIDTH

VALUE (MeV)	DOCUMENT ID
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72 $^{+7}_{-6}$ OUR FIT

84.4 $\pm$ 2.7 OUR AVERAGE Includes data from the 6 datablocks that follow this one. Error includes scale factor of 1.7. See the ideogram below.

WEIGHTED AVERAGE
84.4±2.7 (Error scaled by 1.7)



$f'_2(1525)$ WIDTH (MeV)

PRODUCED BY PION BEAM

VALUE (MeV)	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. • • •

102±42	TIKHOMIROV	03	SPEC	40.0	$\pi^- C \rightarrow K_S^0 K_S^0 K_L^0 X$
108 ⁺⁵ ₋₂	¹ LONGACRE	86	MPS	22	$\pi^- p \rightarrow K_S^0 K_S^0 n$
69 ⁺²² ₋₁₆	² 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 ± 42	3 CORDEN	79	OMEG	12-15	$\pi^- p \rightarrow \pi^+ \pi^- n$
92^{+39}_{-22}	4 POLYCHRO...	79	STRC	7	$\pi^- p \rightarrow n K_S^0 K_S^0$

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

² CHABAUD 81 is a reanalysis of PAWLICKI 77 data.

³ 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.

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

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^{+14}_{-11}	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^{+25}_{-16}	61	BINON	07	GAMS	32.5	$K^- p \rightarrow \eta \eta (\Lambda / \Sigma^0)$
75 ± 20		¹ BARKOV	99	SPEC	40	$K^- p \rightarrow K_S^0 K_S^0 Y$
62^{+19}_{-14}	123	BARREIRO	77	HBC	4.15	$K^- p \rightarrow \Lambda K_S^0 K_S^0$
61 ± 8	120	BRANDENB...	76C	ASPK	13	$K^- p \rightarrow K^+ K^- (\Lambda, \Sigma)$

¹ Systematic errors not estimated.

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

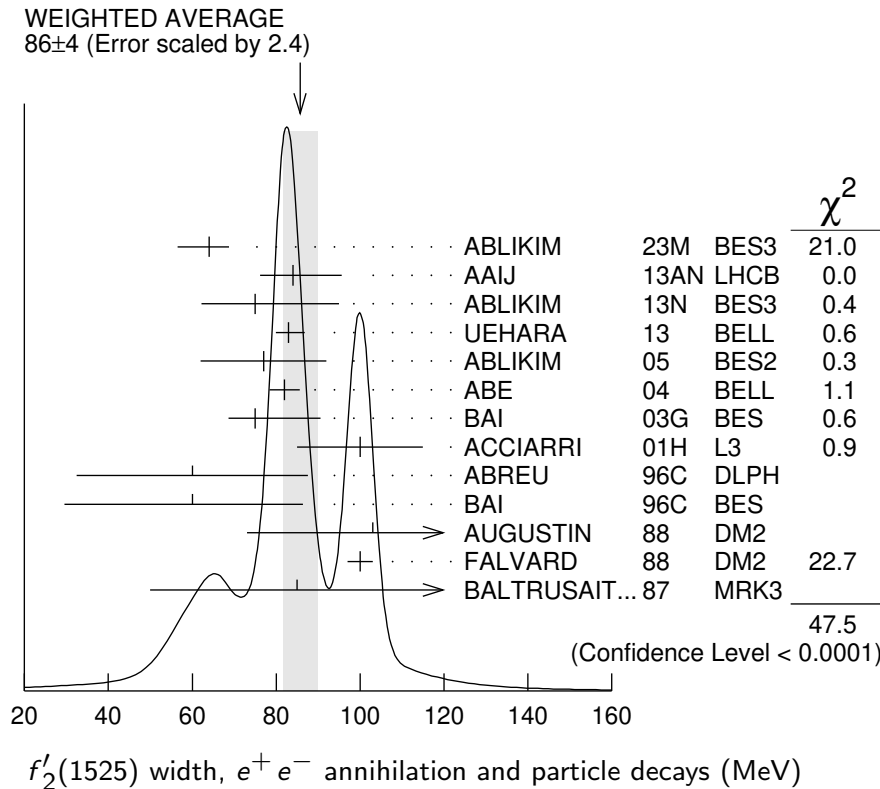
VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
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The data in this block is included in the average printed for a previous datablock.

86 ± 4 OUR AVERAGE Error includes scale factor of 2.4. See the ideogram below.

$64.0 \pm 4.3^{+2.0}_{-6.1}$	126K	ABLIKIM	23M	BES3	$J/\psi \rightarrow \gamma K_S^0 K_S^0 \pi^0$
$84 \pm 6^{+10}_{-5}$		AAIJ	13AN	LHCB	$\bar{B}_s^0 \rightarrow J/\psi K^+ K^-$
$75^{+12}_{-10}^{+16}_{-8}$	5.5k	¹ ABLIKIM	13N	BES3	$e^+ e^- \rightarrow J/\psi \rightarrow \gamma \eta \eta$
$82.9^{+2.1}_{-2.2}^{+3.3}_{-2.0}$		UEHARA	13	BELL	$\gamma \gamma \rightarrow K_S^0 K_S^0$
77 ± 15		ABLIKIM	05	BES2	$J/\psi \rightarrow \phi K^+ K^-$
$82 \pm 2 \pm 3$		ABE	04	BELL	$10.6 e^+ e^- \rightarrow e^+ e^- K^+ K^-$
$75 \pm 4^{+15}_{-5}$		BAI	03G	BES	$J/\psi \rightarrow \gamma K \bar{K}$
100 ± 15	331	² ACCIARRI	01H	L3	$91, 183-209 e^+ e^- \rightarrow e^+ e^- K_S^0 K_S^0$
$60 \pm 20 \pm 19$		ABREU	96C	DLPH	$Z^0 \rightarrow K^+ K^- + X$

60 ± 23 $^{+13}_{-20}$	BAI	96C	BES	$J/\psi \rightarrow \gamma K^+ K^-$
103 ± 30	AUGUSTIN	88	DM2	$J/\psi \rightarrow \gamma K^+ K^-$
100 ± 3	³ 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. • • •				
78 ± 6	⁴ KLEMP	22	RVUE	$J/\psi(1S) \rightarrow \gamma \pi^0 \pi^0,$ $\gamma K_S^0 K_S^0$
84 ± 15	⁵ RODAS	22	RVUE	$J/\psi(1S) \rightarrow \gamma (\pi \pi,$ $K \bar{K})$
37 ± 12	29 ⁶ LEES	14H	BABR	$e^+ e^- \rightarrow$ $K_S^0 K_S^0 K^+ K^- \gamma$
104 ± 10	870 ⁷ SCHEGELSKY	06A	RVUE	$\gamma \gamma \rightarrow K_S^0 K_S^0$
62 ± 10	⁸ FALVARD	88	DM2	$J/\psi \rightarrow \phi K^+ K^-$
¹ From partial wave analysis including all possible combinations of 0^{++} , 2^{++} , and 4^{++} resonances.				
² Supersedes ACCIARRI 95J.				
³ From an analysis including interference with $f_0(1710)$.				
⁴ Fit of the tensor partial waves from BES3 in the multipole basis.				
⁵ T-matrix pole from coupled channel K-matrix fit to data on $J/\psi \rightarrow \gamma \pi^0 \pi^0$ (ABLIKIM 15AE) and $J/\psi \rightarrow \gamma K_S^0 K_S^0$ (ABLIKIM 18AA).				
⁶ From a fit to a Breit-Wigner line shape plus a second-order polynomial function. Systematic errors not evaluated.				
⁷ From analysis of L3 data at 91 and 183–209 GeV.				
⁸ 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	¹ 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	² ALBRECHT	20	RVUE	0.9	$\bar{p}p \rightarrow \pi^0 \pi^0 \eta, \pi^0 \eta \eta,$ $\pi^0 K^+ K^-$
128 ± 20	³ ANISOVICH	09	RVUE	0.0	$\bar{p}p, \pi N$

¹ T-matrix pole.
² T-matrix pole, 4 poles, 4 channels, including scattering data from HYAMS 75 ($\pi\pi$), LONGACRE 86 ($K\bar{K}$), BINON 83 ($\eta\eta$).
³ 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	$pp \rightarrow p_s p_f K^+ K^-$
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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 ⁺⁵ ₋₄	¹ 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. • • •

50 ⁺³⁴ ₋₂₂	84	² CHEKANOV	04	ZEUS	$e p \rightarrow K_S^0 K_S^0 X$
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¹ 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.
² Systematic errors not estimated.

$f_2'(1525)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $K\bar{K}$	(88.8 ± 2.2) %
Γ_2 $\eta\eta$	(10.3 ± 2.2) %
Γ_3 $\pi\pi$	(8.2 ± 1.5) × 10 ⁻³
Γ_4 $K\bar{K}^*(892) + \text{c.c.}$	
Γ_5 $\pi K\bar{K}$	
Γ_6 $\pi\pi\eta$	
Γ_7 $\pi^+ \pi^+ \pi^- \pi^-$	
Γ_8 $\gamma\gamma$	(1.12 ± 0.15) × 10 ⁻⁶

CONSTRAINED FIT INFORMATION

An overall fit to 2 partial widths, a combination of partial widths obtained from integrated cross sections, and 3 branching ratios uses 16 measurements and one constraint to determine 5 parameters. The overall fit has a $\chi^2 = 14.2$ for 12 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, $x_i \equiv \Gamma_i / \Gamma_{\text{total}}$. The fit constrains the x_i whose labels appear in this array to sum to one.

x_2	−100			
x_3	−5	−1		
x_8	0	0	1	
Γ	−28	28	−1	−62
	x_1	x_2	x_3	x_8

Mode	Rate (MeV)
$\Gamma_1 \quad K \bar{K}$	$64 \quad {}^{+6}_{-5}$
$\Gamma_2 \quad \eta \eta$	7.4 ± 1.9
$\Gamma_3 \quad \pi \pi$	0.59 ± 0.12
$\Gamma_8 \quad \gamma \gamma$	$(8.1 \pm 0.9) \times 10^{-5}$

$f'_2(1525)$ PARTIAL WIDTHS

$\Gamma(K \bar{K})$						Γ_1
VALUE (MeV)		DOCUMENT ID	TECN	COMMENT		
64^{+6}_{-5} OUR FIT						
63^{+6}_{-5}		¹ LONGACRE	86	MPS	$22 \pi^- p \rightarrow K_S^0 K_S^0 n$	
¹ From a partial-wave analysis of data using a K-matrix formalism with 5 poles.						

$\Gamma(\eta \eta)$						Γ_2
VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT		
7.4 ± 1.9 OUR FIT						
• • • We do not use the following data for averages, fits, limits, etc. • • •						
5.0 ± 0.8	870	¹ SCHEGELSKY 06A	RVUE	$\gamma \gamma \rightarrow K_S^0 K_S^0$		
$24 \quad {}^{+3}_{-1}$		² LONGACRE	86	MPS	$22 \pi^- p \rightarrow K_S^0 K_S^0 n$	
¹ 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.						
² From a partial-wave analysis of data using a K-matrix formalism with 5 poles.						

$\Gamma(\pi\pi)$ Γ_3

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
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0.59 ± 0.12 OUR FIT**1.4 $^{+1.0}_{-0.5}$** ¹ LONGACRE 86 MPS 22 $\pi^- p \rightarrow K_S^0 K_S^0 n$

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

0.2 $^{+1.0}_{-0.2}$ 870 ² SCHEGELSKY 06A RVUE $\gamma\gamma \rightarrow K_S^0 K_S^0$ ¹ From a partial-wave analysis of data using a K-matrix formalism with 5 poles.² 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. $\Gamma(\gamma\gamma)$ Γ_8

VALUE (keV)	EVTS	DOCUMENT ID	TECN	COMMENT
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0.081 ± 0.009 OUR FIT

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

0.13 ± 0.03

870 ¹ SCHEGELSKY 06A RVUE $\gamma\gamma \rightarrow K_S^0 K_S^0$ ¹ 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. $\Gamma(K\bar{K})/\Gamma_{\text{total}}$ Γ_1/Γ

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

0.746 ± 0.002 $^{+0.166}_{-0.162}$ ¹ ALBRECHT 20 RVUE 0.9 $\bar{p}p \rightarrow \pi^0 \pi^0 \eta, \pi^0 \eta\eta, \pi^0 K^+ K^-$ ¹ 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
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0.072 ± 0.007 OUR FIT**0.072 ± 0.007 OUR AVERAGE**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

¹ ACCIARRI 01H L3 $e^+e^- \rightarrow e^+e^- K_S^0 K_S^0$

0.067 ± 0.008 ± 0.015

² ALBRECHT 90G ARG $e^+e^- \rightarrow e^+e^- K^+ K^-$ 0.11 $^{+0.03}_{-0.02}$ ± 0.02BEHREND 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

² AIHARA 86B TPC $e^+e^- \rightarrow e^+e^- K^+ K^-$

0.11 ± 0.02 ± 0.04

² 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

³ ALBRECHT 90G ARG $e^+e^- \rightarrow e^+e^- K^+ K^-$ ¹ Supersedes ACCIARRI 95J. From analysis of L3 data at 91 and 183–209 GeV,² Using an incoherent background.³ Using a coherent background.

$f'_2(1525)$ 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. • • •			
$0.059 \pm 0.003 \pm 0.026$	¹ 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	² PROKOSHKIN 91	GAM4	$300 \pi^- p \rightarrow \pi^- p \eta \eta$
¹ Residue from T-matrix pole, 4 poles, 4 channels, including scattering data from HYAMS 75 ($\pi\pi$), LONGACRE 86 ($K\bar{K}$), BINON 83 ($\eta\eta$).			
² Combining results of GAM4 with those of WA76 on $K\bar{K}$ central production and results of CBAL, MRK3 and DM2 on $J/\psi \rightarrow \gamma \eta \eta$.			

 $\Gamma(\eta\eta)/\Gamma(K\bar{K})$ **Γ_2/Γ_1**

VALUE	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
0.116 ± 0.028 OUR FIT					
0.115 ± 0.028 OUR AVERAGE					
$0.119 \pm 0.015 \pm 0.036$	61		¹ BINON 07	GAMS	$32.5 K^- p \rightarrow \eta \eta (\Lambda/\Sigma^0)$
0.11 ± 0.04			² 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		$450 p p \rightarrow p_f \eta \eta p_S$
< 0.50			BARNES 67	HBC	$4.6, 5.0 K^- p$
¹ Using the compilation of the cross sections for $f'_2(1525)$ production in $K^- p$ collisions from ASTON 88D.					
² Combining results of GAM4 with those of WA76 on $K\bar{K}$ central production and results of CBAL, MRK3 and DM2 on $J/\psi \rightarrow \gamma \eta \eta$.					

 $\Gamma(\pi\pi)/\Gamma_{\text{total}}$ **Γ_3/Γ**

VALUE (units 10^{-2})	CL%	DOCUMENT ID	TECN	COMMENT
0.82 ± 0.16 OUR FIT				
0.75 ± 0.16 OUR AVERAGE				
0.7 ± 0.2		COSTA 80	OMEG	$10 \pi^- p \rightarrow K^+ K^- n$
$2.7^{+7.1}_{-1.3}$		¹ GORLICH 80	ASPK	$17, 18 \pi^- p$
0.75 ± 0.25		^{1,2} MARTIN 79	RVUE	
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$3.4 \pm 1.5 \pm 1.0$		³ 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		¹ 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		¹ BEUSCH 75B	OSPK	$8.9 \pi^- p \rightarrow K^0 \bar{K}^0 n$
¹ Assuming that the $f'_2(1525)$ is produced by an one-pion exchange production mechanism.				
² MARTIN 79 uses the PAWLICKI 77 data with different input value of the $f'_2(1525) \rightarrow K\bar{K}$ branching ratio.				
³ Residue from T-matrix pole, 4 poles, 4 channels, including scattering data from HYAMS 75 ($\pi\pi$), LONGACRE 86 ($K\bar{K}$), BINON 83 ($\eta\eta$).				

$\Gamma(\pi\pi)/\Gamma(K\bar{K})$ Γ_3/Γ_1

VALUE	DOCUMENT ID	TECN	COMMENT
0.0092±0.0018 OUR FIT			
0.075 ±0.035	AUGUSTIN	87	DM2 $J/\psi \rightarrow \gamma\pi^+\pi^-$

 $[\Gamma(K\bar{K}^*(892)+\text{c.c.})+\Gamma(\pi K\bar{K})]/\Gamma(K\bar{K})$ $(\Gamma_4+\Gamma_5)/\Gamma_1$

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

 $\Gamma(\pi\pi\eta)/\Gamma(K\bar{K})$ Γ_6/Γ_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

 $\Gamma(\pi^+\pi^+\pi^-\pi^-)/\Gamma(K\bar{K})$ Γ_7/Γ_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

 $f'_2(1525)$ REFERENCES

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KLEMP	22	PL B830 137171	E. Klempt <i>et al.</i>	(BONN)
RODAS	22	EPJ C82 80	A. Rodas <i>et al.</i>	(JPAC Collab.)
ALBRECHT	20	EPJ C80 453	M. Albrecht <i>et al.</i>	(Crystal Barrel Collab.)
ABLIKIM	18AA	PR D98 072003	M. Ablikim <i>et al.</i>	(BESIII Collab.)
ABLIKIM	15AE	PR D92 052003	M. Ablikim <i>et al.</i>	(BESIII Collab.)
DOBBS	15	PR D91 052006	S. Dobbs <i>et al.</i>	(NWES)
LEES	14H	PR D89 092002	J.P. Lees <i>et al.</i>	(BABAR Collab.)
AAIJ	13AN	PR D87 072004	R. Aaij <i>et al.</i>	(LHCb Collab.)
ABLIKIM	13N	PR D87 092009	M. Ablikim <i>et al.</i>	(BESIII Collab.)
UEHARA	13	PTEP 2013 123C01	S. Uehara <i>et al.</i>	(BELLE Collab.)
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ANISOVICH	09	IJMP A24 2481	V.V. Anisovich, A.V. Sarantsev	(PNPI)
CHEKANOV	08	PRL 101 112003	S. Chekanov <i>et al.</i>	(ZEUS Collab.)
BINON	07	PAN 70 1713	F. Binon <i>et al.</i>	(GAMS Collab.)
		Translated from YAF 70 1758.		
AMSLER	06	PL B639 165	C. Amsler <i>et al.</i>	(Crystal Barrel Collab.)
SCHEGELSKY	06A	EPJ A27 207	V.A. Schegelsky <i>et al.</i>	
ABLIKIM	05	PL B607 243	M. Ablikim <i>et al.</i>	(BES Collab.)
ABE	04	EPJ C32 323	K. Abe <i>et al.</i>	(BELLE Collab.)
CHEKANOV	04	PL B578 33	S. Chekanov <i>et al.</i>	(ZEUS Collab.)
BAI	03G	PR D68 052003	J.Z. Bai <i>et al.</i>	(BES Collab.)
TIKHOMIROV	03	PAN 66 828	G.D. Tikhomirov <i>et al.</i>	
		Translated from YAF 66 860.		
AMSLER	02	EPJ C23 29	C. Amsler <i>et al.</i>	(Crystal Barrel Collab.)
ACCIARRI	01H	PL B501 173	M. Acciarri <i>et al.</i>	(L3 Collab.)
BARBERIS	00E	PL B479 59	D. Barberis <i>et al.</i>	(WA 102 Collab.)
BARBERIS	99	PL B453 305	D. Barberis <i>et al.</i>	(Omega Expt.)
BARKOV	99	JETPL 70 248	B.P. Barkov <i>et al.</i>	
		Translated from ZETFP 70 242.		
ABREU	96C	PL B379 309	P. Abreu <i>et al.</i>	(DELPHI Collab.)
BAI	96C	PRL 77 3959	J.Z. Bai <i>et al.</i>	(BES Collab.)
ACCIARRI	95J	PL B363 118	M. Acciarri <i>et al.</i>	(L3 Collab.)
PROKOSHKIN	91	SPD 36 155	Y.D. Prokoshkin	(GAM2 and GAM4 Collab.)
		Translated from DANS 316 900.		

ALBRECHT	90G	ZPHY C48 183	H. Albrecht <i>et al.</i>	(ARGUS Collab.)
BEHREND	89C	ZPHY C43 91	H.J. Behrend <i>et al.</i>	(CELLO Collab.)
ASTON	88D	NP B301 525	D. Aston <i>et al.</i>	(SLAC, NAGO, CINC, INUS)
AUGUSTIN	88	PRL 60 2238	J.E. Augustin <i>et al.</i>	(DM2 Collab.)
BERGER	88	ZPHY C37 329	C. Berger <i>et al.</i>	(PLUTO Collab.)
FALVARD	88	PR D38 2706	A. Falvard <i>et al.</i>	(CLER, FRAS, LALO+)
AUGUSTIN	87	ZPHY C36 369	J.E. Augustin <i>et al.</i>	(LALO, CLER, FRAS+)
BALTRUSAITIS...	87	PR D35 2077	R.M. Baltrusaitis <i>et al.</i>	(Mark III Collab.)
AIHARA	86B	PRL 57 404	H. Aihara <i>et al.</i>	(TPC-2 γ Collab.)
BOLONKIN	86	SJNP 43 776	B.V. Bolonkin <i>et al.</i>	(ITEP) JP
		Translated from YAF 43 1211.		
LONGACRE	86	PL B177 223	R.S. Longacre <i>et al.</i>	(BNL, BRAN, CUNY+)
ALTHOFF	83	PL 121B 216	M. Althoff <i>et al.</i>	(TASSO Collab.)
ARMSTRONG	83B	NP B224 193	T.A. Armstrong <i>et al.</i>	(BARI, BIRM, CERN+)
BINON	83	NC 78A 313	F.G. Binon <i>et al.</i>	(BELG, LAPP, SERP+)
AGUILAR-...	81B	ZPHY C8 313	M. Aguilar-Benitez <i>et al.</i>	(CERN, CDEF+)
ALHARRAN	81	NP B191 26	S. Al-Harran <i>et al.</i>	(BIRM, CERN, GLAS+)
CHABAUD	81	APP B12 575	V. Chabaud <i>et al.</i>	(CERN, CRAC, MPIM)
COSTA	80	NP B175 402	G. Costa <i>et al.</i>	(BARI, BONN, CERN, GLAS+)
GORLICH	80	NP B174 16	L. Gorlich <i>et al.</i>	(CRAC, MPIM, CERN+)
CORDEN	79	NP B157 250	M.J. Corden <i>et al.</i>	(BIRM, RHEL, TELA+) JP
MARTIN	79	NP B158 520	A.D. Martin, E.N. Ozmutlu	(DURH)
POLYCHRO...	79	PR D19 1317	V.A. Polychronakos <i>et al.</i>	(NDAM, ANL)
BARREIRO	77	NP B121 237	F. Barreiro <i>et al.</i>	(CERN, AMST, NIJM+)
EVANGELIS...	77	NP B127 384	C. Evangelista <i>et al.</i>	(BARI, BONN, CERN+)
PAWLICKI	77	PR D15 3196	A.J. Pawlicki <i>et al.</i>	(ANL) IJP
BRANDENB...	76C	NP B104 413	G.W. Brandenburg <i>et al.</i>	(SLAC)
BEUSCH	75B	PL 60B 101	W. Beusch <i>et al.</i>	(CERN, ETH)
HYAMS	75	NP B100 205	B.D. Hyams <i>et al.</i>	(CERN, MPIM)
AGUILAR-...	72B	PR D6 29	M. Aguilar-Benitez <i>et al.</i>	(BNL)
AMMAR	67	PRL 19 1071	R. Ammar <i>et al.</i>	(NWES, ANL) JP
BARNES	67	PRL 19 964	V.E. Barnes <i>et al.</i>	(BNL, SYRA) IJPC
CRENNELL	66	PRL 16 1025	D.J. Crennell <i>et al.</i>	(BNL) I