NODE=M005

$f_2(1270)$ $\quad I^G(J^{PC}) = 0^+(2^{++})$

$f_2(1270)$ MASS

NODE=M005205

NODE=M005M

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1275.1±1.2 OUR AVERAGE		Error includes scale factor of 1.1.			
$1262\ {}^{+1}_{-2}\ \pm 8$		ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^+\pi^-$
$1275\ \pm 15$		ABLIKIM	05	BES2	$J/\psi \to \phi\pi^+\pi^-$
$1283\ \pm 5$		ALDE	98	GAM4	$100\ \pi^- p \to \pi^0\pi^0 n$
$1278\ \pm 5$		[1] BERTIN	97C	OBLX	$0.0\ \overline{p}p \to \pi^+\pi^-\pi^0$
$1272\ \pm 8$	200k	PROKOSHKIN	94	GAM2	$38\ \pi^- p \to \pi^0\pi^0 n$
1269.7 ± 5.2	5730	AUGUSTIN	89	DM2	$e^+e^- \to 5\pi$
$1283\ \pm 8$	400	[2] ALDE	87	GAM4	$100\ \pi^- p \to 4\pi^0 n$
$1274\ \pm 5$		[2] AUGUSTIN	87	DM2	$J/\psi \to \gamma\pi^+\pi^-$
$1283\ \pm 6$		[3] LONGACRE	86	MPS	$22\ \pi^- p \to n 2K^0_S$
$1276\ \pm 7$		COURAU	84	DLCO	$e^+e^- \to e^+e^-\pi^+\pi^-$
1273.3 ± 2.3		[4] CHABAUD	83	ASPK	$17\ \pi^- p$ polarized
$1280\ \pm 4$		[5] CASON	82	STRC	$8\ \pi^+ p \to \Delta^{++}\pi^0\pi^0$
$1281\ \pm 7$	11600	GIDAL	81	MRK2	J/ψ decay
$1282\ \pm 5$		[6] CORDEN	79	OMEG	12–15 $\pi^- p \to n 2\pi$
$1269\ \pm 4$	10k	APEL	75	NICE	$40\ \pi^- p \to n 2\pi^0$
$1272\ \pm 4$	4600	ENGLER	74	DBC	$6\ \pi^+ n \to \pi^+\pi^- p$
$1277\ \pm 4$	5300	FLATTE	71	HBC	$7.0\ \pi^+ p$
$1273\ \pm 8$		[2] STUNTEBECK	70	HBC	$8\ \pi^- p$, $5.4\ \pi^+ d$
$1265\ \pm 8$		BOESEBECK	68	HBC	$8\ \pi^+ p$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1277\ \pm 6$	870	[7] SCHEGELSKY	06A	RVUE	$\gamma\gamma \to K^0_S K^0_S$
$1251\ \pm 10$		TIKHOMIROV	03	SPEC	$40.0\ \pi^- \mathrm{C} \to K^0_S K^0_S K^0_L X$
$1260\ \pm 10$		[8] ALDE	97	GAM2	$450\ pp \to pp\pi^0\pi^0$
$1278\ \pm 6$		[8] GRYGOREV	96	SPEC	$40\ \pi^- N \to K^0_S K^0_S X$
$1262\ \pm 11$		AGUILAR-...	91	EHS	$400\ pp$
$1275\ \pm 10$		AKER	91	CBAR	$0.0\ \overline{p}p \to 3\pi^0$
$1220\ \pm 10$		BREAKSTONE	90	SFM	$pp \to pp\pi^+\pi^-$
$1288\ \pm 12$		ABACHI	86B	HRS	$e^+e^- \to \pi^+\pi^- X$
$1284\ \pm 30$	3k	BINON	83	GAM2	$38\ \pi^- p \to n 2\eta$
$1280\ \pm 20$	3k	APEL	82	CNTR	$25\ \pi^- p \to n 2\pi^0$
$1284\ \pm 10$	16000	DEUTSCH...	76	HBC	$16\ \pi^+ p$
$1258\ \pm 10$	600	TAKAHASHI	72	HBC	$8\ \pi^- p \to n 2\pi$
$1275\ \pm 13$		ARMENISE	70	HBC	$9\ \pi^+ n \to p\pi^+\pi^-$
$1261\ \pm 5$	1960	[2] ARMENISE	68	DBC	$5.1\ \pi^+ n \to p\pi^+ MM^-$
$1270\ \pm 10$	360	[2] ARMENISE	68	DBC	$5.1\ \pi^+ n \to p\pi^0 MM$
$1268\ \pm 6$		[9] JOHNSON	68	HBC	3.7–4.2 $\pi^- p$

OCCUR=2

OCCUR=2

[1] T-matrix pole. NODE=M005M;LINKAGE=A

[2] Mass errors enlarged by us to $\Gamma/\sqrt{N}$; see the note with the $K^*(892)$ mass. NODE=M005M;LINKAGE=T

[3] From a partial-wave analysis of data using a K-matrix formalism with 5 poles. NODE=M005M;LINKAGE=L

[4] From an energy-independent partial-wave analysis. NODE=M005M;LINKAGE=O

[5] From an amplitude analysis of the reaction $\pi^+\pi^- \to 2\pi^0$. NODE=M005M;LINKAGE=P

[6] From an amplitude analysis of $\pi^+\pi^- \to \pi^+\pi^-$ scattering data. NODE=M005M;LINKAGE=S

[7] From analysis of L3 data at 91 and 183–209 GeV. NODE=M005M;LINKAGE=SC

[8] Systematic uncertainties not estimated. NODE=M005M;LINKAGE=QQ

[9] JOHNSON 68 includes BONDAR 63, LEE 64, DERADO 65, EISNER 67. NODE=M005M;LINKAGE=J

$f_2(1270)$ WIDTH

NODE=M005210

NODE=M005W

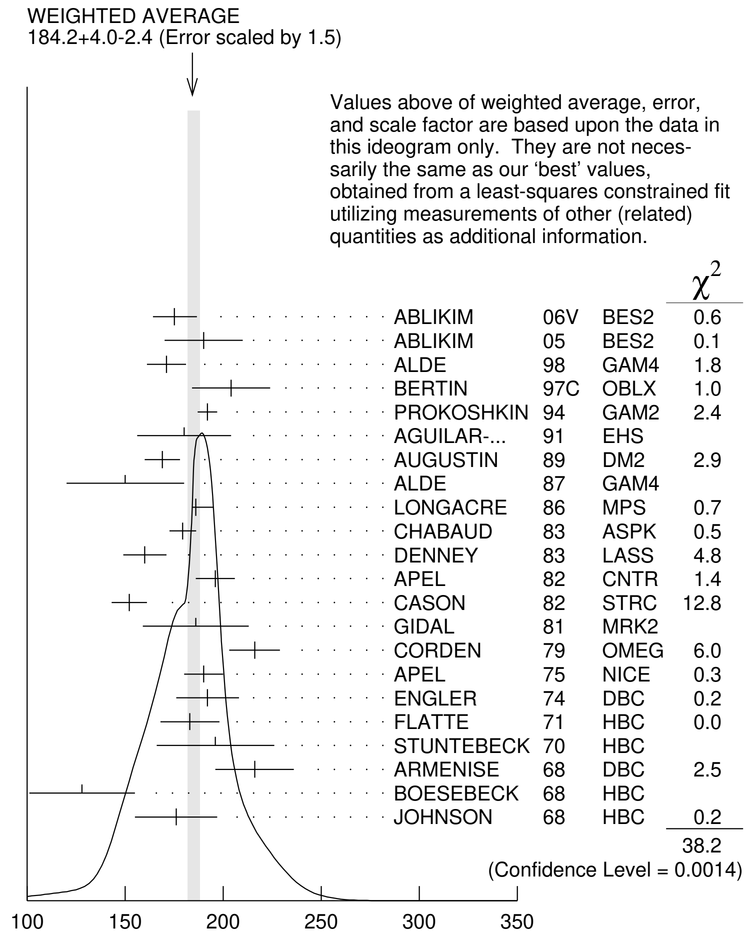
VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{185.1^{+2.9}_{-2.4}}$ **OUR FIT**		Error includes scale factor of 1.5.			
$\mathbf{184.2^{+4.0}_{-2.4}}$ **OUR AVERAGE**		Error includes scale factor of 1.5. See the ideogram below.			
$175\ {}^{+6}_{-4}\ \pm 10$		ABLIKIM	06V	BES2	$e^+e^- \to J/\psi \to \gamma\pi^+\pi^-$
$190\ \pm 20$		ABLIKIM	05	BES2	$J/\psi \to \phi\pi^+\pi^-$
$171\ \pm 10$		ALDE	98	GAM4	$100\ \pi^- p \to \pi^0\pi^0 n$

204	±20		[10] BERTIN	97C	OBLX	0.0 $\overline{p}p \rightarrow \pi^+\pi^-\pi^0$	
192	± 5	200k	PROKOSHKIN	94	GAM2	38 $\pi^- p \rightarrow \pi^0\pi^0 n$	
180	±24		AGUILAR-...	91	EHS	400 pp	
169	± 9	5730	[11] AUGUSTIN	89	DM2	$e^+e^- \rightarrow 5\pi$	
150	±30	400	[11] ALDE	87	GAM4	100 $\pi^- p \rightarrow 4\pi^0 n$	
186	$^{+9}_{-2}$		[12] LONGACRE	86	MPS	22 $\pi^- p \rightarrow n 2K^0_S$	
179.2	$^{+6.9}_{-6.6}$		[13] CHABAUD	83	ASPK	17 $\pi^- p$ polarized	
160	±11		DENNEY	83	LASS	10 $\pi^+ N$	
196	±10	3k	APEL	82	CNTR	25 $\pi^- p \rightarrow n 2\pi^0$	
152	± 9		[14] CASON	82	STRC	8 $\pi^+ p \rightarrow \Delta^{++}\pi^0\pi^0$	
186	±27	11600	GIDAL	81	MRK2	J/ψ decay	
216	±13		[15] CORDEN	79	OMEG	12–15 $\pi^- p \rightarrow n 2\pi$	
190	±10	10k	APEL	75	NICE	40 $\pi^- p \rightarrow n 2\pi^0$	
192	±16	4600	ENGLER	74	DBC	6 $\pi^+ n \rightarrow \pi^+\pi^- p$	
183	±15	5300	FLATTE	71	HBC	7 $\pi^+ p \rightarrow \Delta^{++} f_2$	
196	±30		[11] STUNTEBECK	70	HBC	8 $\pi^- p$, 5.4 $\pi^+ d$	
216	±20	1960	[11] ARMENISE	68	DBC	5.1 $\pi^+ n \rightarrow p\pi^+ MM^-$	OCCUR=2
128	±27		[11] BOESEBECK	68	HBC	8 $\pi^+ p$	
176	±21		[11,16] JOHNSON	68	HBC	3.7–4.2 $\pi^- p$	

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

195	±15	870	[17] SCHEGELSKY	06A	RVUE	$\gamma\gamma \rightarrow K^0_S K^0_S$	
121	±26		TIKHOMIROV	03	SPEC	40.0 $\pi^- C \rightarrow K^0_S K^0_S K^0_L X$	
187	±20		[18] ALDE	97	GAM2	450 $pp \rightarrow pp\pi^0\pi^0$	
184	±10		[18] GRYGOREV	96	SPEC	40 $\pi^- N \rightarrow K^0_S K^0_S X$	
200	±10		AKER	91	CBAR	0.0 $\overline{p}p \rightarrow 3\pi^0$	
240	±40	3k	BINON	83	GAM2	38 $\pi^- p \rightarrow n 2\eta$	
187	±30	650	[11] ANTIPOV	77	CIBS	25 $\pi^- p \rightarrow p 3\pi$	
225	±38	16000	DEUTSCH...	76	HBC	16 $\pi^+ p$	
166	±28	600	[11] TAKAHASHI	72	HBC	8 $\pi^- p \rightarrow n 2\pi$	
173	±53		[11] ARMENISE	70	HBC	9 $\pi^+ n \rightarrow p\pi^+\pi^-$	OCCUR=2

[10] T-matrix pole. NODE=M005W;LINKAGE=QA
[11] Width errors enlarged by us to $4\Gamma/\sqrt{N}$; see the note with the $K^*(892)$ mass. NODE=M005W;LINKAGE=T
[12] From a partial-wave analysis of data using a K-matrix formalism with 5 poles. NODE=M005W;LINKAGE=L
[13] From an energy-independent partial-wave analysis. NODE=M005W;LINKAGE=R
[14] From an amplitude analysis of the reaction $\pi^+\pi^- \rightarrow 2\pi^0$. NODE=M005W;LINKAGE=Q
[15] From an amplitude analysis of $\pi^+\pi^- \rightarrow \pi^+\pi^-$ scattering data. NODE=M005W;LINKAGE=U
[16] JOHNSON 68 includes BONDAR 63, LEE 64, DERADO 65, EISNER 67. NODE=M005W;LINKAGE=J
[17] From analysis of L3 data at 91 and 183–209 GeV. NODE=M005W;LINKAGE=SC
[18] Systematic uncertainties not estimated. NODE=M005W;LINKAGE=QQ



$f_2(1270)$ width (MeV)

$f_2(1270)$ DECAY MODES

NODE=M005215;NODE=M005

	Mode	Fraction (Γ_i/Γ)	Scale factor/ Confidence level	
Γ_1	$\pi\pi$	$(84.8\ ^{+2.4}_{-1.2})$ %	S=1.2	DESIG=1
Γ_2	$\pi^+\pi^-2\pi^0$	$(\ 7.1\ ^{+1.4}_{-2.7})$ %	S=1.3	DESIG=3
Γ_3	$K\overline{K}$	$(\ 4.6\ \pm0.4\ )$ %	S=2.8	DESIG=4
Γ_4	$2\pi^+2\pi^-$	$(\ 2.8\ \pm0.4\ )$ %	S=1.2	DESIG=2
Γ_5	$\eta\eta$	$(\ 4.0\ \pm0.8\ )\times10^{-3}$	S=2.1	DESIG=7
Γ_6	$4\pi^0$	$(\ 3.0\ \pm1.0\ )\times10^{-3}$		DESIG=9
Γ_7	$\gamma\gamma$	$(\ 1.64\pm0.19)\times10^{-5}$	S=1.9	DESIG=8
Γ_8	$\eta\pi\pi$	$<\ 8\ \times10^{-3}$	CL=95%	DESIG=6
Γ_9	$K^0K^-\pi^+ +$ c.c.	$<\ 3.4\ \times10^{-3}$	CL=95%	DESIG=5
Γ_{10}	e^+e^-	$<\ 6\ \times10^{-10}$	CL=90%	DESIG=10

CONSTRAINED FIT INFORMATION

An overall fit to the total width, 4 partial widths, a combination of partial widths obtained from integrated cross sections, and 6 branching ratios uses 44 measurements and one constraint to determine 8 parameters. The overall fit has a $\chi^2 = 81.8$ for 37 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients $\left\langle\delta p_i \delta p_j\right\rangle/(\delta p_i\cdot\delta p_j)$, 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	−91						
x_3	11	−39					
x_4	10	−37	1				
x_5	1	−6	0	0			
x_6	0	−7	0	0	0		
x_7	8	−5	−6	1	0	0	
Γ	−78	71	−11	−8	−1	0	−11
	x_1	x_2	x_3	x_4	x_5	x_6	x_7

	Mode	Rate (MeV)	Scale factor	
Γ_1	$\pi\pi$	$156.9\ {}^{+4.0}_{-1.2}$		DESIG=1
Γ_2	$\pi^+\pi^- 2\pi^0$	$13.2\ {}^{+2.8}_{-5.0}$	1.3	DESIG=3
Γ_3	$K\overline{K}$	8.5 ± 0.8	2.9	DESIG=4
Γ_4	$2\pi^+ 2\pi^-$	5.2 ± 0.7	1.2	DESIG=2
Γ_5	$\eta\eta$	0.74 ± 0.14	2.1	DESIG=7
Γ_6	$4\pi^0$	0.55 ± 0.18		DESIG=9
Γ_7	$\gamma\gamma$	0.00303 ± 0.00035	1.9	DESIG=8

f_2(1270) PARTIAL WIDTHS

NODE=M005220

$\Gamma(\pi\pi)$ Γ_1

NODE=M005W1
NODE=M005W1

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
$156.9^{+4.0}_{-1.2}$ OUR FIT					
$157.0^{+6.0}_{-1.0}$		[19] LONGACRE	86	MPS	$22\ \pi^- p \to n 2K^0_S$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
152 ±8	870	[20] SCHEGELSKY	06A	RVUE	$\gamma\gamma \to K^0_S K^0_S$

$\Gamma(K\overline{K})$ Γ_3

NODE=M005W4
NODE=M005W4

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
8.5±0.8 OUR FIT Error includes scale factor of 2.9.					
$9.0^{+0.7}_{-0.3}$		[19] LONGACRE	86	MPS	$22\ \pi^- p \to n 2K^0_S$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
7.5±2.0	870	[20] SCHEGELSKY	06A	RVUE	$\gamma\gamma \to K^0_S K^0_S$

$\Gamma(\eta\eta)$ Γ_5

NODE=M005W7
NODE=M005W7

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.74±0.14 OUR FIT Error includes scale factor of 2.1.					
1.0 ±0.1		[19] LONGACRE	86	MPS	$22\ \pi^- p \to n 2K^0_S$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.8 ±0.4	870	[20] SCHEGELSKY	06A	RVUE	$\gamma\gamma \to K^0_S K^0_S$

$\Gamma(\gamma\gamma)$ Γ_7

NODE=M005W8

The value of this width depends on the theoretical model used. Unitarised models with scalars give values clustering around ≃ 2.6 keV; without an *S*-wave contribution, values are systematically higher (typically around 3 keV).

NODE=M005W8

VALUE (keV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
3.03±0.35 OUR FIT Error includes scale factor of 1.9.					
3.14±0.20		[21] PENNINGTON	08	RVUE	$\gamma\gamma \to \pi^+\pi^-,\ \pi^0\pi^0$

NODE=M005W8

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

2.55 ± 0.15	870	[20] SCHEGELSKY	06A	RVUE	$\gamma\gamma \to K^0_S K^0_S$
2.84 ± 0.35		BOGLIONE	99	RVUE	$\gamma\gamma \to \pi^+\pi^-$, $\pi^0\pi^0$
$2.93\pm0.23\pm0.32$		[22] YABUKI	95	VNS	
$2.58\pm0.13^{+0.36}_{-0.27}$		[23] BEHREND	92	CELL	$e^+e^- \to e^+e^-\pi^+\pi^-$
$3.10\pm0.35\pm0.35$		[24] BLINOV	92	MD1	$e^+e^- \to e^+e^-\pi^+\pi^-$
$2.27\pm0.47\pm0.11$		ADACHI	90D	TOPZ	$e^+e^- \to e^+e^-\pi^+\pi^-$
$3.15\pm0.04\pm0.39$		BOYER	90	MRK2	$e^+e^- \to e^+e^-\pi^+\pi^-$
$3.19\pm0.16^{+0.29}_{-0.28}$		MARSISKE	90	CBAL	$e^+e^- \to e^+e^-\pi^0\pi^0$
2.35 ± 0.65		[25] MORGAN	90	RVUE	$\gamma\gamma \to \pi^+\pi^-$, $\pi^0\pi^0$
$3.19\pm0.09^{+0.22}_{-0.38}$	2177	OEST	90	JADE	$e^+e^- \to e^+e^-\pi^0\pi^0$
$3.2\pm0.1\pm0.4$		[26] AIHARA	86B	TPC	$e^+e^- \to e^+e^-\pi^+\pi^-$
$2.5\pm0.1\pm0.5$		BEHREND	84B	CELL	$e^+e^- \to e^+e^-\pi^+\pi^-$
$2.85\pm0.25\pm0.5$		[27] BERGER	84	PLUT	$e^+e^- \to e^+e^-2\pi$
$2.70\pm0.05\pm0.20$		COURAU	84	DLCO	$e^+e^- \to e^+e^-\pi^+\pi^-$
$2.52\pm0.13\pm0.38$		[28] SMITH	84C	MRK2	$e^+e^- \to e^+e^-\pi^+\pi^-$
$2.7\pm0.2\pm0.6$		EDWARDS	82F	CBAL	$e^+e^- \to e^+e^-2\pi^0$
$2.9^{+0.6}_{-0.4}\pm0.6$		[29] EDWARDS	82F	CBAL	$e^+e^- \to e^+e^-2\pi^0$
$3.2\pm0.2\pm0.6$		BRANDELIK	81B	TASS	$e^+e^- \to e^+e^-\pi^+\pi^-$
$3.6\pm0.3\pm0.5$		ROUSSARIE	81	MRK2	$e^+e^- \to e^+e^-\pi^+\pi^-$
2.3 ± 0.8		[30] BERGER	80B	PLUT	e^+e^-

OCCUR=2

$\Gamma(e^+e^-)$ Γ_{10}

NODE=M005W9
NODE=M005W9

VALUE (eV)	CL%	DOCUMENT ID		TECN	COMMENT
<0.11	90	ACHASOV	00K	SND	$e^+e^- \to \pi^0\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<1.7	90	VOROBYEV	88	ND	$e^+e^- \to \pi^0\pi^0$

[19] From a partial-wave analysis of data using a K-matrix formalism with 5 poles.
[20] From analysis of L3 data at 91 and 183–209 GeV and using SU(3) relations.
[21] A preferred solution in the amplitude analysis of BOYER 90, MARSISKE 90, BEHREND 92, and MORI 07 with a helicity zero fraction of 13%.
[22] With a narrow scalar state around 1220 MeV.
[23] Using a unitarized model with a 300 - 500 keV wide scalar at 1100 MeV.
[24] Using the unitarized model of LYTH 85.
[25] Error includes spread of different solutions. Data of MARK2 and CRYSTAL BALL used in the analysis. Authors report strong correlations with $\gamma\gamma$ width of $f_0(1370)$: $\Gamma(f_2)$ + 1/4 $\Gamma(f^0)$ = 3.6 ± 0.3 KeV.
[26] Radiative corrections modify the partial widths; for instance the COURAU 84 value becomes 2.66 ± 0.21 in the calculation of LANDRO 86.
[27] Using the MENNESSIER 83 model.
[28] Superseded by BOYER 90.
[29] If helicity = 2 assumption is not made.
[30] Using mass, width and B($f_2(1270) \to 2\pi$) from PDG 78.

NODE=M005PW;LINKAGE=L
NODE=M005W1;LINKAGE=SC
NODE=M005W8;LINKAGE=PE
NODE=M005W8;LINKAGE=YA
NODE=M005W;LINKAGE=B
NODE=M005W;LINKAGE=A
NODE=M005PW;LINKAGE=C
NODE=M005PW;LINKAGE=B
NODE=M005PW;LINKAGE=X
NODE=M005PW;LINKAGE=V
NODE=M005PW;LINKAGE=H
NODE=M005PW;LINKAGE=A

$f_2(1270)$ $\Gamma(i)\Gamma(\gamma\gamma)/\Gamma(\text{total})$

NODE=M005223

$\Gamma(K\overline{K}) \times \Gamma(\gamma\gamma)/\Gamma_{\text{total}}$ $\Gamma_3\Gamma_7/\Gamma$

NODE=M005G1
NODE=M005G1

VALUE (keV)	DOCUMENT ID		TECN	COMMENT
0.139±0.019 OUR FIT Error includes scale factor of 1.9.				
0.091±0.007±0.027	[31] ALBRECHT	90G	ARG	$e^+e^- \to e^+e^-K^+K^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.104±0.007±0.072	[32] ALBRECHT	90G	ARG	$e^+e^- \to e^+e^-K^+K^-$

OCCUR=2

[31] Using an incoherent background.
[32] Using a coherent background.

NODE=M005G1;LINKAGE=A
NODE=M005G1;LINKAGE=K

Helicity-0/Helicity-2 RATIO IN $\gamma\gamma \to f_2(1270) \to \pi\pi$

NODE=M005HR0
NODE=M005HR0

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
$\mathbf{3.7\pm0.3^{+15.9}_{-2.9}}$	UEHARA	08A	BELL	10.6 $e^+e^- \to e^+e^-\pi^0\pi^0$

$f_2(1270)$ BRANCHING RATIOS

NODE=M005225

$\Gamma(\pi\pi)/\Gamma_{total}$ — Γ_1/Γ

NODE=M005R10
NODE=M005R10

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$0.848^{+0.024}_{-0.012}$ OUR FIT		Error includes scale factor of 1.2.			
0.837±0.020 OUR AVERAGE					
0.849±0.025		CHABAUD	83	ASPK	17 $\pi^- p$ polarized
0.85 ±0.05	250	BEAUPRE	71	HBC	8 $\pi^+ p \to \Delta^{++} f_2$
0.8 ±0.04	600	OH	70	HBC	1.26 $\pi^- p \to \pi^+\pi^- n$

$\Gamma(\pi^+\pi^- 2\pi^0)/\Gamma(\pi\pi)$ — Γ_2/Γ_1

NODE=M005R2

Should be twice $\Gamma(2\pi^+ 2\pi^-)/\Gamma(\pi\pi)$ if decay is $\rho\rho$. (See ASCOLI 68D.)

NODE=M005R2
NODE=M005R2

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$0.084^{+0.018}_{-0.033}$ OUR FIT		Error includes scale factor of 1.3.			
0.15 ±0.06	600	EISENBERG	74	HBC	4.9 $\pi^+ p \to \Delta^{++} f_2$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.07		EMMS	75D	DBC	4 $\pi^+ n \to p f_2$

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

NODE=M005R3

We average only experiments which either take into account $f_2(1270)$-$a_2(1320)$ interference explicitly or demonstrate that $a_2(1320)$ production is negligible.

NODE=M005R3

NODE=M005R3

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$0.054^{+0.005}_{-0.006}$ OUR FIT		Error includes scale factor of 2.8.			
$0.041^{+0.004}_{-0.005}$ OUR AVERAGE					
0.045±0.01		[33] BARGIOTTI	03	OBLX	$\overline{p}p$
$0.037^{+0.008}_{-0.021}$		ETKIN	82B	MPS	23 $\pi^- p \to n 2K^0_S$
0.045±0.009		CHABAUD	81	ASPK	17 $\pi^- p$ polarized
0.039±0.008		LOVERRE	80	HBC	4 $\pi^- p \to K\overline{K}N$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.052±0.025		ABLIKIM	04E	BES2	$J/\psi \to \omega K^+ K^-$
0.036±0.005		[34] COSTA...	80	OMEG	1–2.2 $\pi^- p \to K^+ K^- n$
0.030±0.005		[35] MARTIN	79	RVUE	
0.027±0.009		[36] POLYCHRO...	79	STRC	7 $\pi^- p \to n 2K^0_S$
0.025±0.015		EMMS	75D	DBC	4 $\pi^+ n \to p f_2$
0.031±0.012	20	ADERHOLZ	69	HBC	8 $\pi^+ p \to K^+ K^- \pi^+ p$

$\Gamma(2\pi^+ 2\pi^-)/\Gamma(\pi\pi)$ — Γ_4/Γ_1

NODE=M005R1
NODE=M005R1

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.033±0.005 OUR FIT		Error includes scale factor of 1.2.			
0.033±0.004 OUR AVERAGE		Error includes scale factor of 1.1.			
0.024±0.006	160	EMMS	75D	DBC	4 $\pi^+ n \to p f_2$
0.051±0.025	70	EISENBERG	74	HBC	4.9 $\pi^+ p \to \Delta^{++} f_2$
$0.043^{+0.007}_{-0.011}$	285	LOUIE	74	HBC	3.9 $\pi^- p \to n f_2$
0.037±0.007	154	ANDERSON	73	DBC	6 $\pi^+ n \to p f_2$
0.047±0.013		OH	70	HBC	1.26 $\pi^- p \to \pi^+\pi^- n$

$\Gamma(\eta\eta)/\Gamma_{total}$ — Γ_5/Γ

NODE=M005R7
NODE=M005R7

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
4.0±0.8 OUR FIT	Error includes scale factor of 2.1.			
2.9±0.5 OUR AVERAGE				
2.7±0.7	BINON	05	GAMS	33 $\pi^- p \to \eta\eta n$
2.8±0.7	ALDE	86D	GAM4	100 $\pi^- p \to 2\eta n$
5.2±1.7	BINON	83	GAM2	38 $\pi^- p \to 2\eta n$

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

NODE=M005R6
NODE=M005R6

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
0.003±0.001		BARBERIS	00E		450 $pp \to p_f \eta\eta p_s$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.05	95	EDWARDS	82F	CBAL	$e^+ e^- \to e^+ e^- 2\eta$
<0.016	95	EMMS	75D	DBC	4 $\pi^+ n \to p f_2$
<0.09	95	EISENBERG	74	HBC	4.9 $\pi^+ p \to \Delta^{++} f_2$

$\Gamma(4\pi^0)/\Gamma_{total}$ — Γ_6/Γ

NODE=M005R11
NODE=M005R11

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0030±0.0010 OUR FIT					
0.003 ±0.001	400 ± 50	ALDE	87	GAM4	100 $\pi^- p \to 4\pi^0 n$

$\Gamma(\gamma\gamma)/\Gamma_{total}$ — Γ_7/Γ

NODE=M005R13
NODE=M005R13

VALUE (units 10^{-5})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$1.57\pm0.01^{+1.39}_{-0.14}$	UEHARA	08A	BELL	10.6 $e^+e^- \to e^+e^-\pi^0\pi^0$

$\Gamma(\eta\pi\pi)/\Gamma(\pi\pi)$ — Γ_8/Γ_1

NODE=M005R5
NODE=M005R5

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.010	95	EMMS	75D	DBC	4 $\pi^+ n \to p f_2$

$\Gamma(K^0 K^- \pi^+ + c.c.)/\Gamma(\pi\pi)$ — Γ_9/Γ_1

NODE=M005R4
NODE=M005R4

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.004	95	EMMS	75D	DBC	4 $\pi^+ n \to p f_2$

$\Gamma(e^+e^-)/\Gamma_{total}$ — Γ_{10}/Γ

NODE=M005R12
NODE=M005R12

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

[33] Coupled channel analysis of $\pi^+\pi^-\pi^0$, $K^+K^-\pi^0$, and $K^\pm K^0_S\pi^\mp$. NODE=M005R;LINKAGE=BG

[34] Re-evaluated by CHABAUD 83. NODE=M005R3;LINKAGE=D

[35] Includes PAWLICKI 77 data. NODE=M005R3;LINKAGE=F

[36] Takes into account the $f_2(1270)$-$f'_2(1525)$ interference. NODE=M005R3;LINKAGE=M

$f_2(1270)$ REFERENCES

NODE=M005

PENNINGTON	08	EPJ C56 1	M.R. Pennington *et al.*		REFID=52303
UEHARA	08A	PR D78 052004	S. Uehara *et al.*	(BELLE Collab.)	REFID=52309
MORI	07	PR D75 051101R	T. Mori *et al.*	(BELLE Collab.)	REFID=51652
ABLIKIM	06V	PL B642 441	M. Ablikim *et al.*	(BES Collab.)	REFID=51507
SCHEGELSKY	06A	EPJ A27 207	V.A. Schegelsky *et al.*		REFID=51185
ABLIKIM	05	PL B607 243	M. Ablikim *et al.*	(BES Collab.)	REFID=50450
BINON	05	PAN 68 960	F. Binon *et al.*		REFID=50780
		Translated from YAF 68 998.			
ABLIKIM	04E	PL B603 138	M. Ablikim *et al.*	(BES Collab.)	REFID=50174
BARGIOTTI	03	EPJ C26 371	M. Bargiotti *et al.*	(OBELIX Collab.)	REFID=49217
TIKHOMIROV	03	PAN 66 828	G.D. Tikhomirov *et al.*		REFID=49423
		Translated from YAF 66 860.			
ACHASOV	00K	PL B492 8	M.N. Achasov *et al.*	(Novosibirsk SND Collab.)	REFID=47933
BARBERIS	00E	PL B479 59	D. Barberis *et al.*	(WA 102 Collab.)	REFID=47961
BOGLIONE	99	EPJ C9 11	M. Boglione, M.R. Pennington		REFID=46931
ALDE	98	EPJ A3 361	D. Alde *et al.*	(GAM4 Collab.)	REFID=46605
Also		PAN 62 405	D. Alde *et al.*	(GAMS Collab.)	REFID=46914
		Translated from YAF 62 446.			
ALDE	97	PL B397 350	D.M. Alde *et al.*	(GAMS Collab.)	REFID=45392
BERTIN	97C	PL B408 476	A. Bertin *et al.*	(OBELIX Collab.)	REFID=45701
GRYGOREV	96	PAN 59 2105	V.K. Grigoriev, O.N. Baloshin, B.P. Barkov	(ITEP)	REFID=45566
		Translated from YAF 59 2187.			
YABUKI	95	JPSJ 64 435	F. Yabuki *et al.*	(VENUS Collab.)	REFID=46384
PROKOSHKIN	94	SPD 39 420	Y.D. Prokoshkin, A.A. Kondashov	(SERP)	REFID=44094
		Translated from DANS 336 613.			
BEHREND	92	ZPHY C56 381	H.J. Behrend	(CELLO Collab.)	REFID=43172
BLINOV	92	ZPHY C53 33	A.E. Blinov *et al.*	(NOVO)	REFID=41858
AGUILAR-...	91	ZPHY C50 405	M. Aguilar-Benitez *et al.*	(LEBC-EHS Collab.)	REFID=41637
AKER	91	PL B260 249	E. Aker *et al.*	(Crystal Barrel Collab.)	REFID=41587
ADACHI	90D	PL B234 185	I. Adachi *et al.*	(TOPAZ Collab.)	REFID=41345
ALBRECHT	90G	ZPHY C48 183	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=41374
BOYER	90	PR D42 1350	J. Boyer *et al.*	(Mark II Collab.)	REFID=41362
BREAKSTONE	90	ZPHY C48 569	A.M. Breakstone *et al.*	(ISU, BGNA, CERN+)	REFID=41376
MARSISKE	90	PR D41 3324	H. Marsiske *et al.*	(Crystal Ball Collab.)	REFID=41351
MORGAN	90	ZPHY C48 623	D. Morgan, M.R. Pennington	(RAL, DURH)	REFID=41583
OEST	90	ZPHY C47 343	T. Oest *et al.*	(JADE Collab.)	REFID=41358
AUGUSTIN	89	NP B320 1	J.E. Augustin, G. Cosme	(DM2 Collab.)	REFID=41004
VOROBYEV	88	SJNP 48 273	P.V. Vorobiev *et al.*	(NOVO)	REFID=41023
		Translated from YAF 48 436.			
ALDE	87	PL B198 286	D.M. Alde *et al.*	(LANL, BRUX, SERP, LAPP)	REFID=40221
AUGUSTIN	87	ZPHY C36 369	J.E. Augustin *et al.*	(LALO, CLER, FRAS+)	REFID=40268
ABACHI	86B	PRL 57 1990	S. Abachi *et al.*	(PURD, ANL, IND, MICH+)	REFID=20394
AIHARA	86B	PRL 57 404	H. Aihara *et al.*	(TPC-2γ Collab.)	REFID=20764
ALDE	86D	NP B269 485	D.M. Alde *et al.*	(BELG, LAPP, SERP, CERN+)	REFID=20765
LANDRO	86	PL B172 445	M. Landro, K.J. Mork, H.A. Olsen	(UTRO)	REFID=20767
LONGACRE	86	PL B177 223	R.S. Longacre *et al.*	(BNL, BRAN, CUNY+)	REFID=20768
LYTH	85	JPG 11 459	D.H. Lyth		REFID=42169
BEHREND	84B	ZPHY C23 223	H.J. Behrend *et al.*	(CELLO Collab.)	REFID=20757
BERGER	84	ZPHY C26 199	C. Berger *et al.*	(PLUTO Collab.)	REFID=20760
COURAU	84	PL 147B 227	A. Courau *et al.*	(CIT, SLAC)	REFID=20758
SMITH	84C	PR D30 851	J.R. Smith *et al.*	(SLAC, LBL, HARV)	REFID=20759
BINON	83	NC 78A 313	F.G. Binon *et al.*	(BELG, LAPP, SERP+)	REFID=20750
Also		SJNP 38 561	F.G. Binon *et al.*	(BELG, LAPP, SERP+)	REFID=20751
		Translated from YAF 38 934.			

CHABAUD	83	NP B223 1	V. Chabaud *et al.*	(CERN, CRAC, MPIM)	REFID=20131
DENNEY	83	PR D28 2726	D.L. Denney *et al.*	(IOWA, MICH)	REFID=20754
MENNESSIER	83	ZPHY C16 241	G. Mennessier	(MONP)	REFID=20393
APEL	82	NP B201 197	W.D. Apel *et al.*	(KARLK, KARLE, PISA, SERP+)	REFID=20745
CASON	82	PRL 48 1316	N.M. Cason *et al.*	(NDAM, ANL)	REFID=20746
EDWARDS	82F	PL 110B 82	C. Edwards *et al.*	(CIT, HARV, PRIN+)	REFID=20747
ETKIN	82B	PR D25 1786	A. Etkin *et al.*	(BNL, CUNY, TUFTS, VAND)	REFID=20390
BRANDELIK	81B	ZPHY C10 117	R. Brandelik *et al.*	(TASSO Collab.)	REFID=20741
CHABAUD	81	APP B12 575	V. Chabaud *et al.*	(CERN, CRAC, MPIM)	REFID=20742
GIDAL	81	PL 107B 153	G. Gidal *et al.*	(SLAC, LBL)	REFID=20386
ROUSSARIE	81	PL 105B 304	A. Roussarie *et al.*	(SLAC, LBL)	REFID=20388
BERGER	80B	PL 94B 254	C. Berger *et al.*	(PLUTO Collab.)	REFID=20736
COSTA...	80	NP B175 402	G. Costa de Beauregard *et al.*	(BARI, BONN+)	REFID=20737
LOVERRE	80	ZPHY C6 187	P.F. Loverre *et al.*	(CERN, CDEF, MADR+)	REFID=20382
CORDEN	79	NP B157 250	M.J. Corden *et al.*	(BIRM, RHEL, TELA+)	REFID=20374
MARTIN	79	NP B158 520	A.D. Martin, E.N. Ozmutlu	(DURH)	REFID=20377
POLYCHRO...	79	PR D19 1317	V.A. Polychronakos *et al.*	(NDAM, ANL)	REFID=20378
PDG	78	PL 75B 1	C. Bricman *et al.*		REFID=40124
ANTIPOV	77	NP B119 45	Y.M. Antipov *et al.*	(SERP, GEVA)	REFID=20728
PAWLICKI	77	PR D15 3196	A.J. Pawlicki *et al.*	(ANL)	REFID=20367
DEUTSCH...	76	NP B103 426	M. Deutschmann *et al.*	(AACH3, BERL, BONN+)	REFID=20119
APEL	75	PL 57B 398	W.D. Apel *et al.*	(KARLK, KARLE, PISA, SERP+)	REFID=20720
EMMS	75D	NP B96 155	M.J. Emms *et al.*	(BIRM, DURH, RHEL)	REFID=20721
EISENBERG	74	PL 52B 239	Y. Eisenberg *et al.*	(REHO)	REFID=20715
ENGLER	74	PR D10 2070	A. Engler *et al.*	(CMU, CASE)	REFID=20110
LOUIE	74	PL 48B 385	J. Louie *et al.*	(SACL, CERN)	REFID=20719
ANDERSON	73	PRL 31 562	J.C. Anderson *et al.*	(CMU, CASE)	REFID=20710
TAKAHASHI	72	PR D6 1266	K. Takahashi *et al.*	(TOHOK, PENN, NDAM+)	REFID=20103
BEAUPRE	71	NP B28 77	J.V. Beaupre *et al.*	(AACH, BERL, CERN)	REFID=20698
FLATTE	71	PL 34B 551	S.M. Flatte *et al.*	(LBL)	REFID=20700
ARMENISE	70	LNC 4 199	N. Armenise *et al.*	(BARI, BGNA, FIRZ)	REFID=20693
OH	70	PR D1 2494	B.Y. Oh *et al.*	(WISC, TNTO) JP	REFID=20335
STUNTEBECK	70	PL 32B 391	P.H. Stuntebeck *et al.*	(NDAM)	REFID=20696
ADERHOLZ	69	NP B11 259	M. Aderholz *et al.*	(AACH3, BERL, CERN+)	REFID=20687
ARMENISE	68	NC 54A 999	N. Armenise *et al.*	(BARI, BGNA, FIRZ+)	REFID=20054
ASCOLI	68D	PRL 21 1712	G. Ascoli *et al.*	(ILL)	REFID=20681
BOESEBECK	68	NP B4 501	K. Boesebeck *et al.*	(AACH, BERL, CERN)	REFID=20585
JOHNSON	68	PR 176 1651	P.B. Johnson *et al.*	(NDAM, PURD, SLAC)	REFID=20065
EISNER	67	PR 164 1699	R.L. Eisner *et al.*	(PURD)	REFID=20046
DERADO	65	PRL 14 872	I. Derado *et al.*	(NDAM)	REFID=20668
LEE	64	PRL 12 342	Y.Y. Lee *et al.*	(MICH)	REFID=20663
BONDAR	63	PL 5 153	L. Bondar *et al.*	(AACH, BIRM, BONN, DESY+)	REFID=20657

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ANISOVICH	05	JETPL 80 715 Translated from ZETFP 80 845.	V.V. Anisovich		REFID=50772
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GARMASH	02	PR D65 092005	A. Garmash *et al.*	(BELLE Collab.)	REFID=48634
LI	01	JPG 27 807	D.-M. Li, H. Yu, Q.-X. Shen		REFID=48306