$f_2(1950)$

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

$f_2(1950)$ MASS

VALUE (MeV)		DOCUMENT ID		TECN	CHG	COMMENT
1945±13 OUR AVERAGE		Error includes scale factor of 1.6. See the ideogram below.				
2010±25		ANISOVICH	00J	SPEC		
1940±50		BAI	00A	BES		$J/\psi \rightarrow \gamma(\pi^+\pi^-\pi^+\pi^-)$
1980±22	[1]	BARBERIS	00C			450 $pp \rightarrow pp4\pi$
1940±22	[2]	BARBERIS	00C			450 $pp \rightarrow pp2\pi 2\pi^0$
1980±50		ANISOVICH	99B	SPEC		1.35–1.94 $p\overline{p} \rightarrow \eta\eta\pi^0$
1960±30		BARBERIS	97B	OMEG		450 $pp \rightarrow pp2(\pi^+\pi^-)$
1918±12		ANTINORI	95	OMEG		300,450 $pp \rightarrow pp2(\pi^+\pi^-)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
1980± 2±14		ABE	04	BELL		10.6 $e^+e^- \rightarrow e^+e^-K^+K^-$
1867±46	[3]	AMSLER	02	CBAR		0.9 $\overline{p}p \rightarrow \pi^0\eta\eta$, $\pi^0\pi^0\pi^0$
~ 1996		HASAN	94	RVUE		$\overline{p}p \rightarrow \pi\pi$
~ 1990	[4]	OAKDEN	94	RVUE		0.36–1.55 $\overline{p}p \rightarrow \pi\pi$
1950±15	[5]	ASTON	91	LASS	0	11 $K^-p \rightarrow \Lambda K\overline{K}\pi\pi$

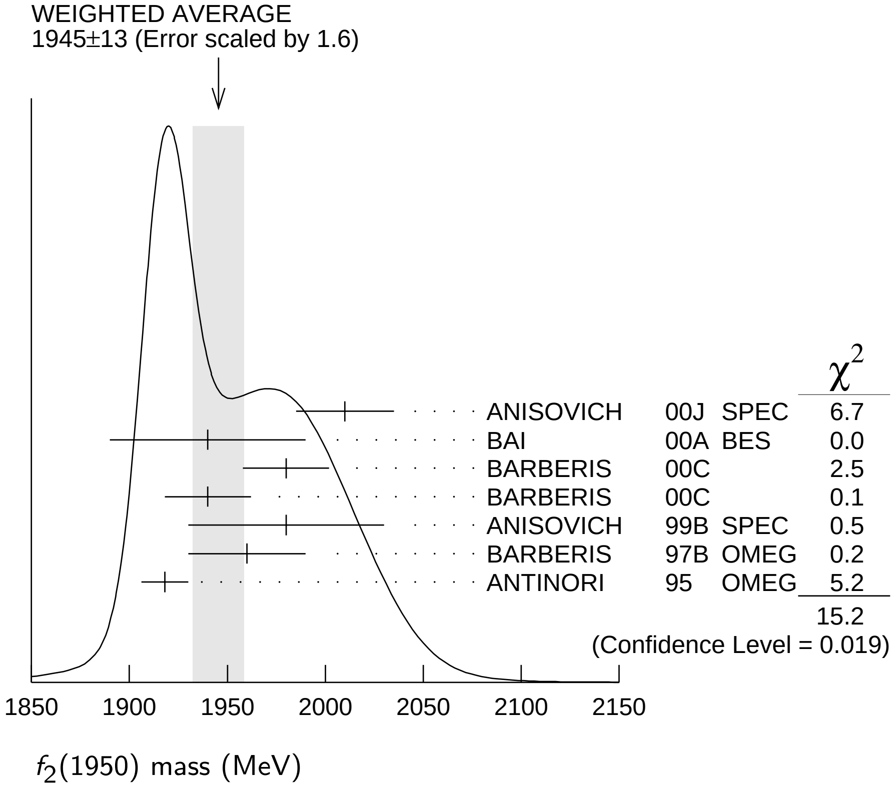
[1] Decaying into $\pi^+\pi^-2\pi^0$.

[2] Decaying into $2(\pi^+\pi^-)$.

[3] T-matrix pole.

[4] From solution B of amplitude analysis of data on $\overline{p}p \rightarrow \pi\pi$. See however KLOET 96 who fit $\pi^+\pi^-$ only and find waves only up to $J = 3$ to be important but not significantly resonant.

[5] Cannot determine spin to be 2.



$f_2(1950)$ WIDTH

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*CHG*	*COMMENT*
475± 19 OUR AVERAGE					
495± 35	ANISOVICH	00J	SPEC		
380^{+120}_{-90}	BAI	00A	BES		$J/\psi \rightarrow \gamma(\pi^+\pi^-\pi^+\pi^-)$
520± 50	[6] BARBERIS	00C			450 $pp \rightarrow pp4\pi$
485± 55	[7] BARBERIS	00C			450 $pp \rightarrow pp4\pi$
500±100	ANISOVICH	99B	SPEC		1.35–1.94 $p\overline{p} \rightarrow \eta\eta\pi^0$
460± 40	BARBERIS	97B	OMEG		450 $pp \rightarrow pp2(\pi^+\pi^-)$
390± 60	ANTINORI	95	OMEG		300,450 $pp \rightarrow pp2(\pi^+\pi^-)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
297± 12±6	ABE	04	BELL		10.6 $e^+e^- \rightarrow e^+e^-K^+K^-$
385± 58	[8] AMSLER	02	CBAR		0.9 $\overline{p}p \rightarrow \pi^0\eta\eta$, $\pi^0\pi^0\pi^0$
∼ 134	HASAN	94	RVUE		$\overline{p}p \rightarrow \pi\pi$
∼ 100	[9] OAKDEN	94	RVUE		0.36–1.55 $\overline{p}p \rightarrow \pi\pi$
250± 50	[10] ASTON	91	LASS	0	11 $K^-p \rightarrow \Lambda K\overline{K}\pi\pi$

[6] Decaying into $\pi^+\pi^-2\pi^0$.
[7] Decaying into $2(\pi^+\pi^-)$.
[8] T-matrix pole.
[9] From solution B of amplitude analysis of data on $\overline{p}p \rightarrow \pi\pi$. See however KLOET 96 who fit $\pi^+\pi^-$ only and find waves only up to $J = 3$ to be important but not significantly resonant.
[10] Cannot determine spin to be 2.

$f_2(1950)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$K^*(892)\overline{K}^*(892)$	seen
Γ_2	$\pi^+\pi^-$	seen
Γ_3	4π	seen
Γ_4	$\pi^+\pi^-\pi^+\pi^-$	
Γ_5	$a_2(1320)\pi$	
Γ_6	$f_2(1270)\pi\pi$	
Γ_7	$\eta\eta$	seen
Γ_8	$K\overline{K}$	seen
Γ_9	$\gamma\gamma$	seen

$f_2(1950)$ $\Gamma(i)\Gamma(\gamma\gamma)/\Gamma(\text{total})$

$\Gamma(K\overline{K}) \times \Gamma(\gamma\gamma)/\Gamma_{total}$ — $\Gamma_8\Gamma_9/\Gamma$

VALUE (eV)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$122\pm4\pm26$	[11] ABE	04	BELL	10.6 $e^+e^- \rightarrow e^+e^-K^+K^-$

[11] Assuming spin 2.

$f_2(1950)$ BRANCHING RATIOS

$\Gamma(K^*(892)\overline{K}^*(892))/\Gamma_{total}$ — Γ_1/Γ

VALUE	DOCUMENT ID		TECN	CHG	COMMENT
seen	ASTON	91	LASS	0	11 $K^-p \rightarrow \Lambda K\overline{K}\pi\pi$

$\Gamma(a_2(1320)\pi)/\Gamma_{total}$ — Γ_5/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
not seen	BARBERIS	00B		450 $pp \rightarrow p_f\eta\pi^+\pi^-p_s$
not seen	BARBERIS	00C		450 $pp \rightarrow p_f 4\pi p_s$
possibly seen	BARBERIS	97B	OMEG	450 $pp \rightarrow pp2(\pi^+\pi^-)$

$\Gamma(\eta\eta)/\Gamma(4\pi)$ — Γ_7/Γ_3

VALUE	CL%	DOCUMENT ID		COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$<5.0\times10^{-3}$	90	BARBERIS	00E	450 $pp \rightarrow p_f\eta\eta p_s$

$\Gamma(\eta\eta)/\Gamma(\pi^+\pi^-)$ — Γ_7/Γ_2

VALUE	DOCUMENT ID		TECN	COMMENT
0.14±0.05	AMSLER	02	CBAR	0.9 $\overline{p}p \rightarrow \pi^0\eta\eta, \pi^0\pi^0\pi^0$

$f_2(1950)$ REFERENCES

ABE	04	EPJ C32 323	K. Abe *et al.*	(BELLE Collab.)
AMSLER	02	EPJ C23 29	C. Amsler *et al.*	
ANISOVICH	00J	PL B491 47	A.V. Anisovich *et al.*	
BAI	00A	PL B472 207	J.Z. Bai *et al.*	(BES Collab.)
BARBERIS	00B	PL B471 435	D. Barberis *et al.*	(WA 102 Collab.)
BARBERIS	00C	PL B471 440	D. Barberis *et al.*	(WA 102 Collab.)
BARBERIS	00E	PL B479 59	D. Barberis *et al.*	(WA 102 Collab.)
ANISOVICH	99B	PL B449 154	A.V. Anisovich *et al.*	
BARBERIS	97B	PL B413 217	D. Barberis *et al.*	(WA 102 Collab.)
KLOET	96	PR D53 6120	W.M. Kloet, F. Myhrer	(RUTG, NORD)
ANTINORI	95	PL B353 589	F. Antinori *et al.*	(ATHU, BARI, BIRM+) JP
HASAN	94	PL B334 215	A. Hasan, D.V. Bugg	(LOQM)
OAKDEN	94	NP A574 731	M.N. Oakden, M.R. Pennington	(DURH)
ASTON	91	NPBPS B21 5	D. Aston *et al.*	(LASS Collab.)

OTHER RELATED PAPERS

ALBRECHT	88N	PL B212 528	H. Albrecht *et al.*	(ARGUS Collab.)
ALBRECHT	87Q	PL B198 255	H. Albrecht *et al.*	(ARGUS Collab.)
ARMSTRONG	87C	ZPHY C34 33	T.A. Armstrong *et al.*	(CERN, BIRM, BARI+)