

**$f_2(1950)$**

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

OMITTED FROM SUMMARY TABLE

Needs confirmation.

**$f_2(1950)$  MASS**

VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT
<b>1934 ± 12 OUR AVERAGE</b>	Error includes scale factor of 1.3. See the ideogram below.			
1867 ± 46	<sup>1</sup> AMSLER	02	CBAR	0.9 $\bar{p}p \rightarrow \pi^0 \eta \eta, \pi^0 \pi^0 \pi^0$
1940 ± 50	BAI	00A	BES	$J/\psi \rightarrow \gamma(\pi^+ \pi^- \pi^+ \pi^-)$
1980 ± 22	<sup>2</sup> BARBERIS	00C		450 $pp \rightarrow pp4\pi$
1940 ± 22	<sup>3</sup> BARBERIS	00C		450 $pp \rightarrow pp4\pi$
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. ● ● ●				
2010 ± 25	ANISOVICH	00J	SPEC	
1980 ± 50	ANISOVICH	99B	SPEC	1.35–1.94 $p\bar{p} \rightarrow \eta \eta \pi^0$
~ 1996	HASAN	94	RVUE	$\bar{p}p \rightarrow \pi \pi$
~ 1990	<sup>4</sup> OAKDEN	94	RVUE	0.36–1.55 $\bar{p}p \rightarrow \pi \pi$
1950 ± 15	<sup>5</sup> ASTON	91	LASS 0	11 $K^- p \rightarrow \Lambda K \bar{K} \pi \pi$

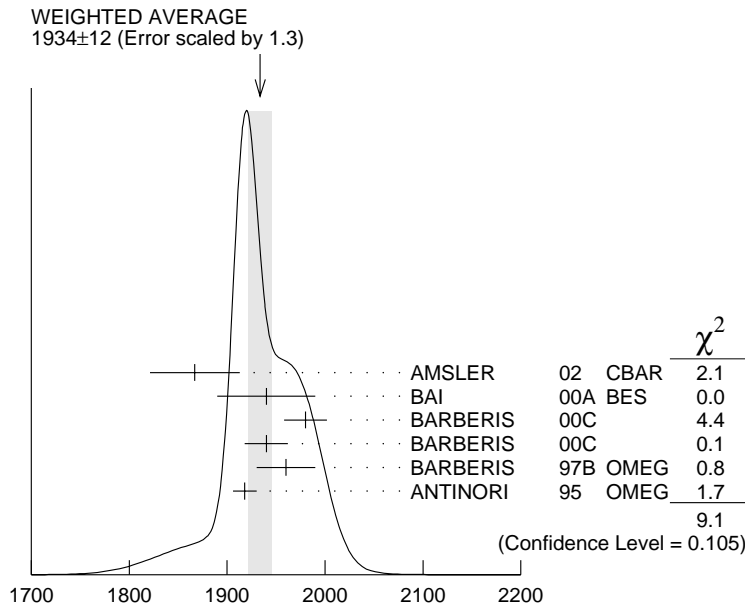
<sup>1</sup> T-matrix pole.

<sup>2</sup> Decaying into  $\pi^+ \pi^- 2\pi^0$ .

<sup>3</sup> Decaying into  $2(\pi^+ \pi^-)$ .

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

<sup>5</sup> Cannot determine spin to be 2.



$f_2(1950)$  mass (MeV)

### $f_2(1950)$ WIDTH

VALUE (MeV)	DOCUMENT ID	TECN	CHG	COMMENT
<b>452± 22 OUR AVERAGE</b>				
385± 58	<sup>6</sup> AMSLER	02	CBAR	0.9 $\bar{p}p \rightarrow \pi^0 \eta \eta, \pi^0 \pi^0 \pi^0$
380 <sup>+120</sup> <sub>-90</sub>	BAI	00A	BES	$J/\psi \rightarrow \gamma(\pi^+ \pi^- \pi^+ \pi^-)$
520± 50	<sup>7</sup> BARBERIS	00C		450 $pp \rightarrow pp4\pi$
485± 55	<sup>8</sup> BARBERIS	00C		450 $pp \rightarrow pp4\pi$
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. ● ● ●				
495± 35	ANISOVICH	00J	SPEC	
500±100	ANISOVICH	99B	SPEC	1.35–1.94 $p\bar{p} \rightarrow \eta \eta \pi^0$
~ 134	HASAN	94	RVUE	$\bar{p}p \rightarrow \pi \pi$
~ 100	<sup>9</sup> OAKDEN	94	RVUE	0.36–1.55 $\bar{p}p \rightarrow \pi \pi$
250± 50	<sup>10</sup> ASTON	91	LASS 0	11 $K^- p \rightarrow \Lambda K \bar{K} \pi \pi$

<sup>6</sup> T-matrix pole.

<sup>7</sup> Decaying into  $\pi^+ \pi^- 2\pi^0$ .

<sup>8</sup> Decaying into  $2(\pi^+ \pi^-)$ .

<sup>9</sup> From solution B of amplitude analysis of data on  $\bar{p}p \rightarrow \pi \pi$ . See however KLOET 96 who fit  $\pi^+ \pi^-$  only and find waves only up to  $J = 3$  to be important but not significantly resonant.

<sup>10</sup> Cannot determine spin to be 2.

## $f_2(1950)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $K^*(892)\bar{K}^*(892)$	seen
$\Gamma_2$ $\pi^+\pi^-$	seen
$\Gamma_3$ $4\pi$	seen
$\Gamma_4$ $\pi^+\pi^-\pi^+\pi^-$	
$\Gamma_5$ $a_2(1320)\pi$	
$\Gamma_6$ $f_2(1270)\pi\pi$	
$\Gamma_7$ $\eta\eta$	seen

## $f_2(1950)$ BRANCHING RATIOS

$\Gamma(K^*(892)\bar{K}^*(892))/\Gamma_{\text{total}}$	$\Gamma_1/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u> <u>TECN</u> <u>CHG</u> <u>COMMENT</u>
seen	ASTON    91    LASS    0    11 $K^-p \rightarrow \Lambda K \bar{K} \pi \pi$

$\Gamma(a_2(1320)\pi)/\Gamma_{\text{total}}$	$\Gamma_5/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u> <u>TECN</u> <u>COMMENT</u>

● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
not seen	BARBERIS	00B	450 $p p \rightarrow p_f \eta \pi^+ \pi^- p_s$
not seen	BARBERIS	00C	450 $p p \rightarrow p_f 4\pi p_s$
possibly seen	BARBERIS	97B OMEG	450 $p p \rightarrow p p 2(\pi^+ \pi^-)$

$\Gamma(\eta\eta)/\Gamma(4\pi)$	$\Gamma_7/\Gamma_3$
<u>VALUE</u>	<u>CL%</u> <u>DOCUMENT ID</u> <u>COMMENT</u>

● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
$<5.0 \times 10^{-3}$	90	BARBERIS	00E 450 $p p \rightarrow p_f \eta \eta p_s$

$\Gamma(\eta\eta)/\Gamma(\pi^+\pi^-)$	$\Gamma_7/\Gamma_2$
<u>VALUE</u>	<u>DOCUMENT ID</u> <u>TECN</u> <u>COMMENT</u>

● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
$0.14 \pm 0.05$	AMSLER	02	CBAR $0.9 \bar{p} p \rightarrow \pi^0 \eta \eta, \pi^0 \pi^0 \pi^0$

## $f_2(1950)$ REFERENCES

AMSLER	02	EPJ C23 29	C. Amsler <i>et al.</i>
ANISOVICH	00J	PL B491 47	A.V. Anisovich <i>et al.</i>
BAI	00A	PL B472 207	J.Z. Bai <i>et al.</i> (BES Collab.)
BARBERIS	00B	PL B471 435	D. Barberis <i>et al.</i> (WA 102 Collab.)
BARBERIS	00C	PL B471 440	D. Barberis <i>et al.</i> (WA 102 Collab.)
BARBERIS	00E	PL B479 59	D. Barberis <i>et al.</i> (WA 102 Collab.)
ANISOVICH	99B	PL B449 154	A.V. Anisovich <i>et al.</i>
BARBERIS	97B	PL B413 217	D. Barberis <i>et al.</i> (WA 102 Collab.)
KLOET	96	PR D53 6120	W.M. Kloet, F. Myhrer (RUTG, NORD)
ANTINORI	95	PL B353 589	F. Antinori <i>et al.</i> (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 <i>et al.</i> (LASS Collab.)

————— **OTHER RELATED PAPERS** —————

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

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