

# $f_2(1810)$

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

OMITTED FROM SUMMARY TABLE

Needs confirmation.

## $f_2(1810)$ MASS

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>1815±12 OUR AVERAGE</b> Error includes scale factor of 1.4. See the ideogram below.				
1800±30	40	ALDE	88D GAM4	300 $\pi^- p \rightarrow \pi^- p 4\pi^0$
1806±10	1600	ALDE	87 GAM4	100 $\pi^- p \rightarrow 4\pi^0 n$
1870±40		<sup>1</sup> ALDE	86D GAM4	100 $\pi^- p \rightarrow \eta\eta n$
1857 <sup>+35</sup> <sub>-24</sub>		<sup>2</sup> COSTA...	80 OMEG	10 $\pi^- p \rightarrow K^+ K^- n$

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

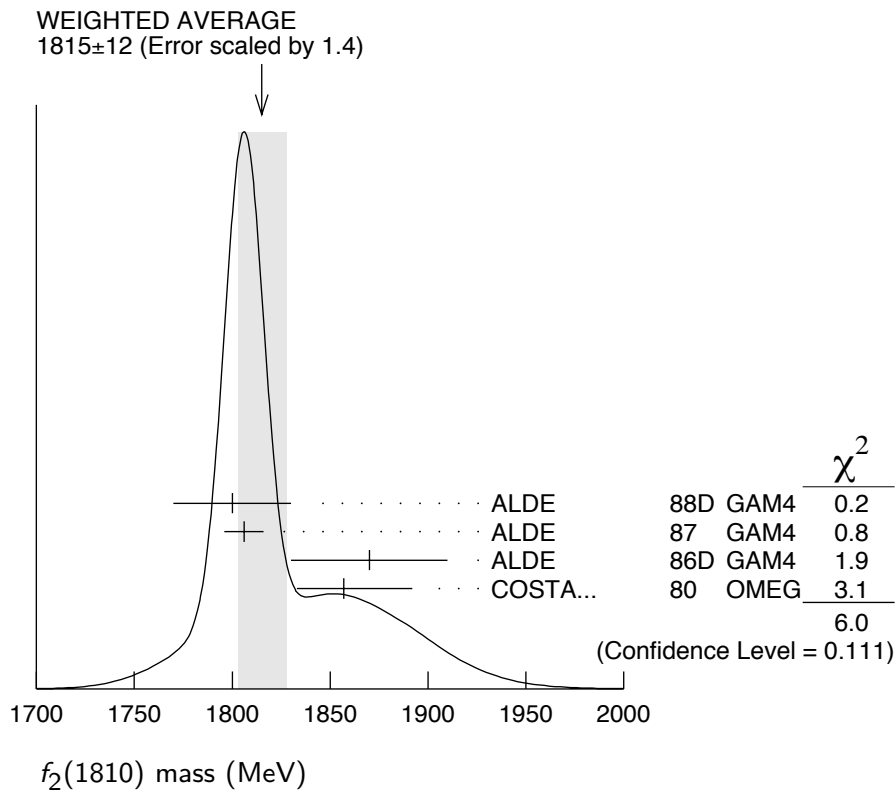
1858 <sup>+18</sup> <sub>-71</sub>		<sup>3</sup> LONGACRE	86 RVUE	Compilation
1799±15		<sup>4</sup> CASON	82 STRC	8 $\pi^+ p \rightarrow \Delta^{++} \pi^0 \pi^0$

<sup>1</sup> Seen in only one solution.

<sup>2</sup> Error increased by spread of two solutions. Included in LONGACRE 86 global analysis.

<sup>3</sup> From a partial-wave analysis of data using a K-matrix formalism with 5 poles. Includes compilation of several other experiments.

<sup>4</sup> From an amplitude analysis of the reaction  $\pi^+ \pi^- \rightarrow 2\pi^0$ . The resonance in the  $2\pi^0$  final state is not confirmed by PROKOSHKIN 97.



## $f_2(1810)$ WIDTH

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>197 ± 22 OUR AVERAGE</b>				Error includes scale factor of 1.5. See the ideogram below.
160 ± 30	40	ALDE	88D GAM4	300 $\pi^- p \rightarrow \pi^- p 4\pi^0$
190 ± 20	1600	ALDE	87 GAM4	100 $\pi^- p \rightarrow 4\pi^0 n$
250 ± 30		<sup>5</sup> ALDE	86D GAM4	100 $\pi^- p \rightarrow \eta\eta n$
185 <sup>+102</sup> <sub>-139</sub>		<sup>6</sup> COSTA...	80 OMEG	10 $\pi^- p \rightarrow K^+ K^- n$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
388 <sup>+15</sup> <sub>-21</sub>		<sup>7</sup> LONGACRE	86 RVUE	Compilation
280 <sup>+42</sup> <sub>-35</sub>		<sup>8</sup> CASON	82 STRC	8 $\pi^+ p \rightarrow \Delta^{++} \pi^0 \pi^0$

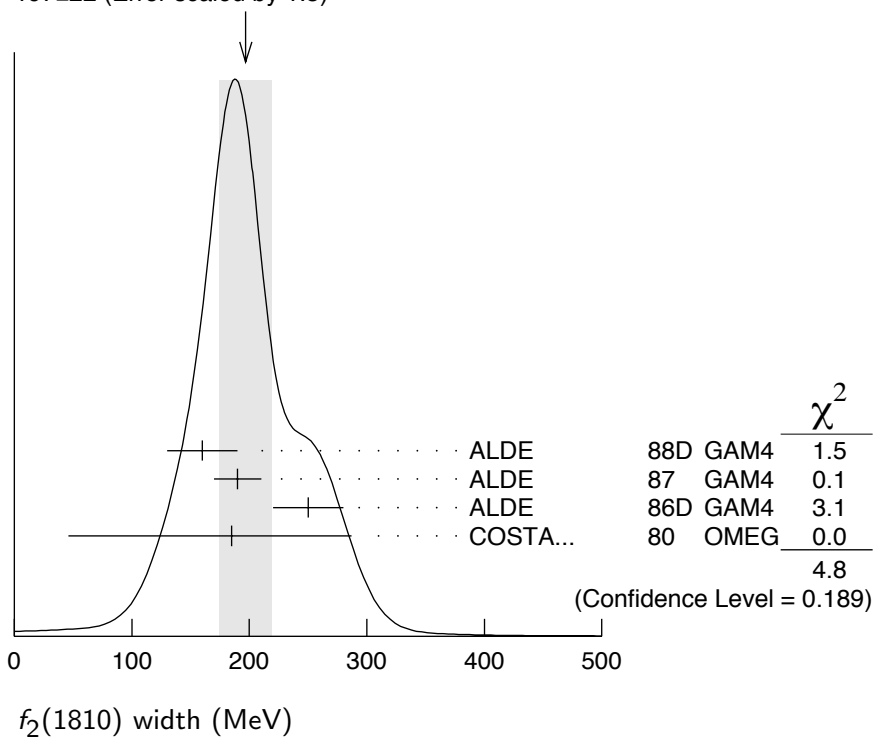
<sup>5</sup> Seen in only one solution.

<sup>6</sup> Error increased by spread of two solutions. Included in LONGACRE 86 global analysis.

<sup>7</sup> From a partial-wave analysis of data using a K-matrix formalism with 5 poles. Includes compilation of several other experiments.

<sup>8</sup> From an amplitude analysis of the reaction  $\pi^+ \pi^- \rightarrow 2\pi^0$ . The resonance in the  $2\pi^0$  final state is not confirmed by PROKOSHKIN 97.

WEIGHTED AVERAGE  
197 ± 22 (Error scaled by 1.5)



## $f_2(1810)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $\pi\pi$	
$\Gamma_2$ $\eta\eta$	
$\Gamma_3$ $4\pi^0$	seen
$\Gamma_4$ $K^+K^-$	

## $f_2(1810)$ BRANCHING RATIOS

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

VALUE	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
not seen	AMSLER	02	CBAR $0.9 \bar{p}p \rightarrow \pi^0\eta\eta,$ $\pi^0\pi^0\pi^0$
not seen	PROKOSHKIN	97	GAM2 $38 \pi^-p \rightarrow \pi^0\pi^0n$
$0.21^{+0.02}_{-0.03}$	<sup>9</sup> LONGACRE	86	RVUE Compilation
$0.44 \pm 0.03$	<sup>10</sup> CASON	82	STRC $8 \pi^+p \rightarrow \Delta^{++}\pi^0\pi^0$

<sup>9</sup> From a partial-wave analysis of data using a K-matrix formalism with 5 poles. Includes compilation of several other experiments.

<sup>10</sup> Included in LONGACRE 86 global analysis.

### $\Gamma(\eta\eta)/\Gamma_{\text{total}}$ $\Gamma_2/\Gamma$

VALUE	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
$0.008^{+0.028}_{-0.003}$	<sup>9</sup> LONGACRE	86	RVUE Compilation

### $\Gamma(\pi\pi)/\Gamma(4\pi^0)$ $\Gamma_1/\Gamma_3$

VALUE	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
$<0.75$	ALDE	87	GAM4 $100 \pi^-p \rightarrow 4\pi^0n$

### $\Gamma(4\pi^0)/\Gamma(\eta\eta)$ $\Gamma_3/\Gamma_2$

VALUE	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
$0.8 \pm 0.3$	ALDE	87	GAM4 $100 \pi^-p \rightarrow 4\pi^0n$

### $\Gamma(K^+K^-)/\Gamma_{\text{total}}$ $\Gamma_4/\Gamma$

VALUE	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
$0.003^{+0.019}_{-0.002}$	<sup>9</sup> LONGACRE	86	RVUE Compilation
seen	COSTA...	80	OMEG $10 \pi^-p \rightarrow K^+K^-n$

## $f_2(1810)$ REFERENCES

AMSLER	02	EPJ C23 29	C. Amsler <i>et al.</i>	
PROKOSHKIN	97	SPD 42 117	Y.D. Prokoshkin <i>et al.</i>	(SERP)
		Translated from DANS 353 323.		
ALDE	88D	SJNP 47 810	D.M. Alde <i>et al.</i>	(SERP, BELG, LANL, LAPP+)
		Translated from YAF 47 1273.		
ALDE	87	PL B198 286	D.M. Alde <i>et al.</i>	(LANL, BRUX, SERP, LAPP)
ALDE	86D	NP B269 485	D.M. Alde <i>et al.</i>	(BELG, LAPP, SERP, CERN+)
LONGACRE	86	PL B177 223	R.S. Longacre <i>et al.</i>	(BNL, BRAN, CUNY+)
CASON	82	PRL 48 1316	N.M. Cason <i>et al.</i>	(NDAM, ANL)
COSTA...	80	NP B175 402	G. Costa de Beauregard <i>et al.</i>	(BARI, BONN+)

## OTHER RELATED PAPERS

ANISOVICH	05	JETPL 80 715	V.V. Anisovich	
		Translated from ZETFP 80 845.		
AKER	91	PL B260 249	E. Aker <i>et al.</i>	(Crystal Barrel Collab.)
CASON	83	PR D28 1586	N.M. Cason <i>et al.</i>	(NDAM, ANL)
ETKIN	82B	PR D25 1786	A. Etkin <i>et al.</i>	(BNL, CUNY, TUFTS, VAND)