

$f_2(1810)$

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

OMITTED FROM SUMMARY TABLE
Needs confirmation.

$f_2(1810)$ MASS

| VALUE (MeV) | EVTS | DOCUMENT ID | TECN | COMMENT |
|--|------|-----------------------|----------|--|
| 1815±12 OUR AVERAGE 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 | | ¹ ALDE | 86D GAM4 | 100 $\pi^- p \rightarrow \eta \eta n$ |
| 1857 ⁺³⁵ ₋₂₄ | | ² COSTA... | 80 OMEG | 10 $\pi^- p \rightarrow K^+ K^- n$ |

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

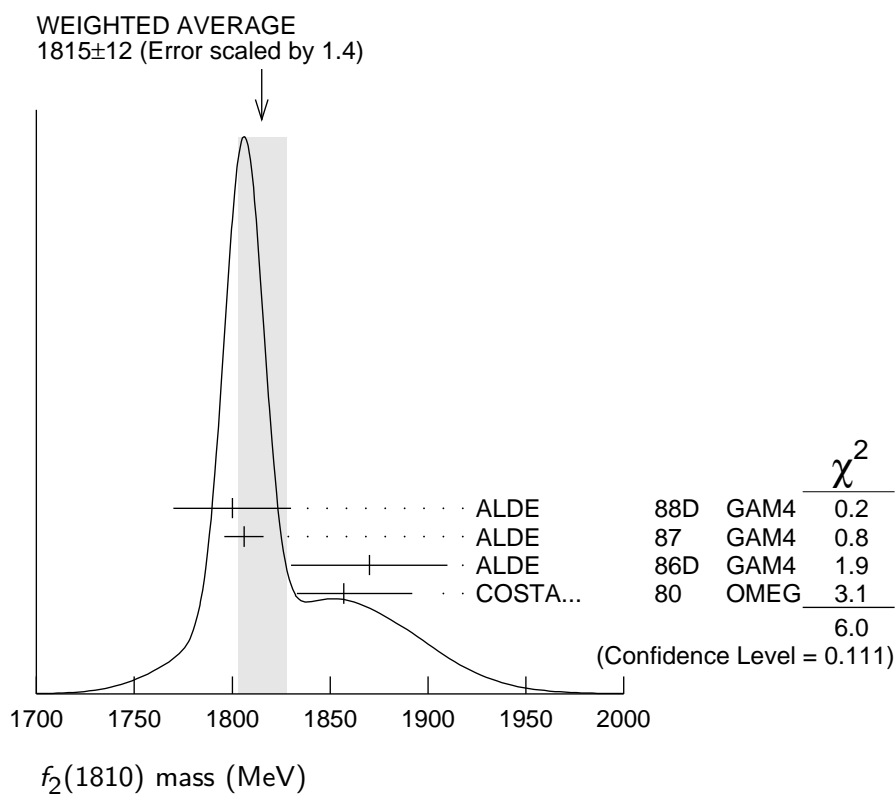
| | | | | |
|------------------------------------|--|-----------------------|---------|---|
| 1858 ⁺¹⁸ ₋₇₁ | | ³ LONGACRE | 86 RVUE | Compilation |
| 1799±15 | | ⁴ CASON | 82 STRC | 8 $\pi^+ p \rightarrow \Delta^{++} \pi^0 \pi^0$ |

¹ Seen in only one solution.

² Error increased by spread of two solutions. Included in LONGACRE 86 global analysis.

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

⁴ 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 |
|---|------|---|------|--|
| 197 ± 22 OUR AVERAGE | | 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 | | ⁵ ALDE | 86D | GAM4 100 $\pi^- p \rightarrow \eta\eta n$ |
| 185 ⁺¹⁰² ₋₁₃₉ | | ⁶ COSTA... | 80 | OMEG 10 $\pi^- p \rightarrow K^+ K^- n$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 388 ⁺¹⁵ ₋₂₁ | | ⁷ LONGACRE | 86 | RVUE Compilation |
| 280 ⁺⁴² ₋₃₅ | | ⁸ CASON | 82 | STRC 8 $\pi^+ p \rightarrow \Delta^{++} \pi^0 \pi^0$ |

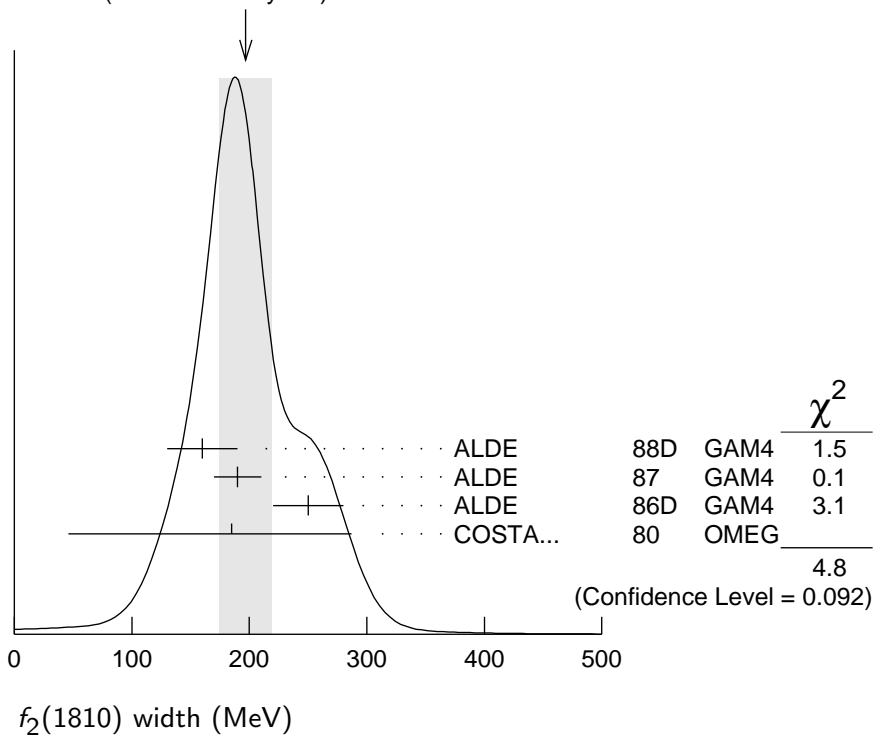
⁵ Seen in only one solution.

⁶ Error increased by spread of two solutions. Included in LONGACRE 86 global analysis.

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

⁸ 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 (Γ_i/Γ) |
|-----------------------|--------------------------------|
| Γ_1 $\pi\pi$ | |
| Γ_2 $\eta\eta$ | |
| Γ_3 $4\pi^0$ | seen |
| Γ_4 K^+K^- | |

$f_2(1810)$ BRANCHING RATIOS

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

| 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 $38 \pi^- p \rightarrow \pi^0 \pi^0 n$ |
| $0.21^{+0.02}_{-0.03}$ | ⁹ LONGACRE | 86 | RVUE Compilation |
| 0.44 ± 0.03 | ¹⁰ CASON | 82 | STRC $8 \pi^+ p \rightarrow \Delta^{++} \pi^0 \pi^0$ |

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

¹⁰ Included in LONGACRE 86 global analysis.

$\Gamma(\eta\eta)/\Gamma_{\text{total}}$ Γ_2/Γ

| VALUE | DOCUMENT ID | TECN | COMMENT |
|---------------------------|---|------|------------------|
| • • • | We do not use the following data for averages, fits, limits, etc. • • • | | |
| $0.008^{+0.028}_{-0.003}$ | ¹¹ LONGACRE | 86 | RVUE Compilation |

¹¹ From a partial-wave analysis of data using a K-matrix formalism with 5 poles. Includes compilation of several other experiments.

$\Gamma(\pi\pi)/\Gamma(4\pi^0)$ Γ_1/Γ_3

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

$\Gamma(4\pi^0)/\Gamma(\eta\eta)$ Γ_3/Γ_2

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

$\Gamma(K^+K^-)/\Gamma_{\text{total}}$ Γ_4/Γ

| VALUE | DOCUMENT ID | TECN | COMMENT |
|---------------------------|---|------|---|
| • • • | We do not use the following data for averages, fits, limits, etc. • • • | | |
| $0.003^{+0.019}_{-0.002}$ | ¹² LONGACRE | 86 | RVUE Compilation |
| seen | COSTA... | 80 | OMEG $10 \pi^- p \rightarrow K^+ K^- n$ |

¹² From a partial-wave analysis of data using a K-matrix formalism with 5 poles. Includes compilation of several other experiments.

$f_2(1810)$ 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) |
