

$K_2(1820)$

$$I(J^P) = \frac{1}{2}(2^-)$$

See our mini-review in the 2004 edition of this *Review* (PDG 04) under  $K_2(1770)$ .

$K_2(1820)$  MASS

| VALUE (MeV)                                                                                                                  | EVTS | DOCUMENT ID        | TECN     | COMMENT                            |
|------------------------------------------------------------------------------------------------------------------------------|------|--------------------|----------|------------------------------------|
| <b>1819±12 OUR AVERAGE</b>                                                                                                   |      |                    |          |                                    |
| 1853±27 <sup>+18</sup> <sub>-35</sub>                                                                                        | 4289 | <sup>1</sup> AAIJ  | 17C LHCb | $B^+ \rightarrow J/\psi \phi K^+$  |
| 1816±13                                                                                                                      |      | <sup>2</sup> ASTON | 93 LASS  | $11K^- p \rightarrow K^- \omega p$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • •                                                |      |                    |          |                                    |
| ~ 1840                                                                                                                       |      | <sup>3</sup> DAUM  | 81C CNTR | $63 K^- p \rightarrow K^- 2\pi p$  |
| <sup>1</sup> From an amplitude analysis of the decay $B^+ \rightarrow J/\psi \phi K^+$ with a significance of 3.0 $\sigma$ . |      |                    |          |                                    |
| <sup>2</sup> From a partial wave analysis of the $K^- \omega$ system.                                                        |      |                    |          |                                    |
| <sup>3</sup> From a partial wave analysis of the $K^- 2\pi$ system.                                                          |      |                    |          |                                    |

$K_2(1820)$  WIDTH

| VALUE (MeV)                                                                                                                  | EVTS | DOCUMENT ID        | TECN     | COMMENT                            |
|------------------------------------------------------------------------------------------------------------------------------|------|--------------------|----------|------------------------------------|
| <b>264±34 OUR AVERAGE</b>                                                                                                    |      |                    |          |                                    |
| 167±58 <sup>+82</sup> <sub>-72</sub>                                                                                         | 4289 | <sup>1</sup> AAIJ  | 17C LHCb | $B^+ \rightarrow J/\psi \phi K^+$  |
| 276±35                                                                                                                       |      | <sup>2</sup> ASTON | 93 LASS  | $11K^- p \rightarrow K^- \omega p$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • •                                                |      |                    |          |                                    |
| ~ 230                                                                                                                        |      | <sup>3</sup> DAUM  | 81C CNTR | $63 K^- p \rightarrow K^- 2\pi p$  |
| <sup>1</sup> From an amplitude analysis of the decay $B^+ \rightarrow J/\psi \phi K^+$ with a significance of 3.0 $\sigma$ . |      |                    |          |                                    |
| <sup>2</sup> From a partial wave analysis of the $K^- \omega$ system.                                                        |      |                    |          |                                    |
| <sup>3</sup> From a partial wave analysis of the $K^- 2\pi$ system.                                                          |      |                    |          |                                    |

$K_2(1820)$  DECAY MODES

| Mode                         | Fraction ( $\Gamma_i/\Gamma$ ) |
|------------------------------|--------------------------------|
| $\Gamma_1$ $K \pi \pi$       | seen                           |
| $\Gamma_2$ $K_2^*(1430) \pi$ | seen                           |
| $\Gamma_3$ $K^*(892) \pi$    | seen                           |
| $\Gamma_4$ $K f_2(1270)$     | seen                           |
| $\Gamma_5$ $K \omega$        | seen                           |
| $\Gamma_6$ $K \phi$          | seen                           |

$K_2(1820)$  BRANCHING RATIOS

| $\Gamma(K_2^*(1430)\pi)/\Gamma(K\pi\pi)$                                      | $\Gamma_2/\Gamma_1$ |             |                |                                    |
|-------------------------------------------------------------------------------|---------------------|-------------|----------------|------------------------------------|
| <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. • • • |                     |             |                |                                    |
| $\sim 0.77$                                                                   | DAUM                | 81C         | CNTR           | $63K^-p \rightarrow \bar{K}2\pi p$ |

| $\Gamma(K^*(892)\pi)/\Gamma(K\pi\pi)$                                         |                    |             |                | $\Gamma_3/\Gamma_1$                  |
|-------------------------------------------------------------------------------|--------------------|-------------|----------------|--------------------------------------|
| <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. • • • |                    |             |                |                                      |
| $\sim 0.05$                                                                   | DAUM               | 81C         | CNTR           | $63K^- p \rightarrow \bar{K} 2\pi p$ |

| $\Gamma(K f_2(1270))/\Gamma(K \pi \pi)$                                       |                    |             |                | $\Gamma_4/\Gamma_1$                  |
|-------------------------------------------------------------------------------|--------------------|-------------|----------------|--------------------------------------|
| <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. • • • |                    |             |                |                                      |
| $\sim 0.18$                                                                   | DAUM               | 81C         | CNTR           | $63K^- p \rightarrow \bar{K} 2\pi p$ |

| $\Gamma(K\phi)/\Gamma_{\text{total}}$                                                                                        |      |                     |      | $\Gamma_6/\Gamma$ |                                   |
|------------------------------------------------------------------------------------------------------------------------------|------|---------------------|------|-------------------|-----------------------------------|
| VALUE                                                                                                                        | EVTS | DOCUMENT ID         | TECN | COMMENT           |                                   |
| seen                                                                                                                         | 24k  | <sup>1</sup> AAIJ   | 21E  | LHCB              | $B^+ \rightarrow J/\psi \phi K^+$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • •                                                |      |                     |      |                   |                                   |
| seen                                                                                                                         | 4289 | <sup>2,3</sup> AAIJ | 17C  | LHCB              | $B^+ \rightarrow J/\psi \phi K^+$ |
| <sup>1</sup> From an amplitude analysis of the decay $B^+ \rightarrow J/\psi \phi K^+$ with a significance of $5.8 \sigma$ . |      |                     |      |                   |                                   |
| <sup>2</sup> From an amplitude analysis of the decay $B^+ \rightarrow J/\psi \phi K^+$ with a significance of $3.0 \sigma$ . |      |                     |      |                   |                                   |
| <sup>3</sup> Superseded by AAIJ 21E.                                                                                         |      |                     |      |                   |                                   |

**$K_2(1820)$  REFERENCES**

|       |     |                |                           |                           |
|-------|-----|----------------|---------------------------|---------------------------|
| AAIJ  | 21E | PRL 127 082001 | R. Aaij <i>et al.</i>     | (LHCb Collab.)            |
| AAIJ  | 17C | PRL 118 022003 | R. Aaij <i>et al.</i>     | (LHCb Collab.)            |
| Also  |     | PR D95 012002  | R. Aaij <i>et al.</i>     | (LHCb Collab.)            |
| PDG   | 04  | PL B592 1      | S. Eidelman <i>et al.</i> | (PDG Collab.)             |
| ASTON | 93  | PL B308 186    | D. Aston <i>et al.</i>    | (SLAC, NAGO, CINC, INUS)  |
| DAUM  | 81C | NP B187 1      | C. Daum <i>et al.</i>     | (AMST, CERN, CRAC, MPIM+) |