

NODE=M104

 $K_2^*(1980)$ 

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

 $K_2^*(1980)$  MASS

NODE=M104M

NODE=M104M

| VALUE (MeV) | EVTs | DOCUMENT ID | TECN | CHG | COMMENT |
|-------------|------|-------------|------|-----|---------|
|-------------|------|-------------|------|-----|---------|

**1990<sup>+60</sup><sub>-50</sub> OUR AVERAGE** Error includes scale factor of 2.8. See the ideogram below.

|                                    |          |      |                      |               |                                                |
|------------------------------------|----------|------|----------------------|---------------|------------------------------------------------|
| 2046 <sup>+17</sup> <sub>-16</sub> | 67<br>15 | 1.8k | <sup>1</sup> ABLIKIM | 20F BES3      | $\psi(2S) \rightarrow K^+ K^- \eta$            |
| 1868 $\pm$ 8                       | 40<br>57 | 183k | ABLIKIM              | 19AQBES $\pm$ | $J/\psi \rightarrow K^+ K^- \pi^0$             |
| 1973 $\pm$ 8 $\pm$ 25              |          |      | ASTON                | 87 LASS 0     | 11 $K^- p \rightarrow \bar{K}^0 \pi^+ \pi^- n$ |

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

|                                               |      |                      |           |                                                |
|-----------------------------------------------|------|----------------------|-----------|------------------------------------------------|
| 2073 $\pm$ 94 <sup>+245</sup> <sub>-240</sub> | 4289 | 2, <sup>3</sup> AAIJ | 17C LHCB  | $B^+ \rightarrow J/\psi \phi K^+$              |
| 2020 $\pm$ 20                                 |      | TIKHOMIROV 03        | SPEC      | 40.0 $\pi^- C \rightarrow K_S^0 K_S^0 K_L^0 X$ |
| 1978 $\pm$ 40                                 | 241  | BIRD                 | 89 LASS - | 11 $K^- p \rightarrow \bar{K}^0 \pi^- p$       |

<sup>1</sup> Seen in  $\psi(2S)$  decay with branching ratio  $\psi(2S) \rightarrow K^\pm X \rightarrow K^+ K^- \eta = (7.0 \pm 0.5^{+3.7}_{-0.6}) \times 10^{-6}$ .

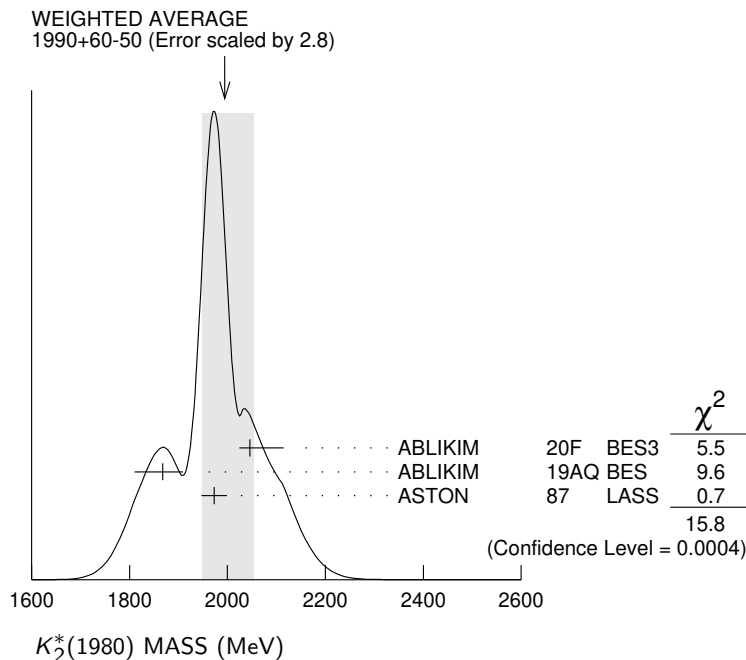
<sup>2</sup> From an amplitude analysis of the decay  $B^+ \rightarrow J/\psi \phi K^+$  with a significance of 5.4  $\sigma$ .

<sup>3</sup> A reanalysis by AAIJ 21E using a larger data sample did not confirm this measurement, the new result having a significance of only 1.6  $\sigma$ .

NODE=M104M;LINKAGE=C

NODE=M104M;LINKAGE=B

NODE=M104M;LINKAGE=E

 $K_2^*(1980)$  WIDTH

NODE=M104W

NODE=M104W

| VALUE (MeV) | EVTs | DOCUMENT ID | TECN | CHG | COMMENT |
|-------------|------|-------------|------|-----|---------|
|-------------|------|-------------|------|-----|---------|

**348<sup>+50</sup><sub>-30</sub> OUR AVERAGE** Error includes scale factor of 1.3. See the ideogram below.

|                                            |          |      |                      |               |                                                |
|--------------------------------------------|----------|------|----------------------|---------------|------------------------------------------------|
| 408 <sup>+38</sup> <sub>-34</sub>          | 72<br>44 | 1.8k | <sup>1</sup> ABLIKIM | 20F BES3      | $\psi(2S) \rightarrow K^+ K^- \eta$            |
| 272 $\pm$ 24 <sup>+50</sup> <sub>-15</sub> |          | 183k | ABLIKIM              | 19AQBES $\pm$ | $J/\psi \rightarrow K^+ K^- \pi^0$             |
| 373 $\pm$ 33 $\pm$ 60                      |          |      | ASTON                | 87 LASS 0     | 11 $K^- p \rightarrow \bar{K}^0 \pi^+ \pi^- n$ |

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

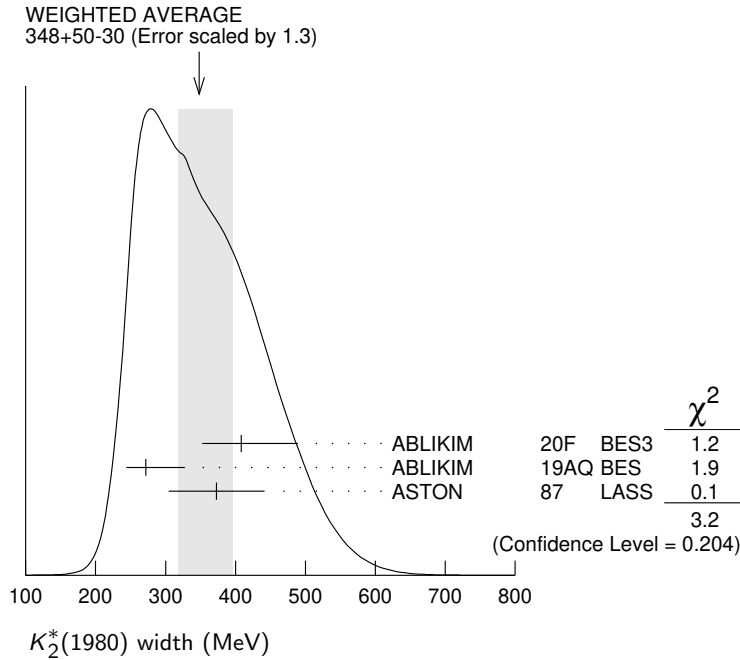
|                                                |      |                      |           |                                                |
|------------------------------------------------|------|----------------------|-----------|------------------------------------------------|
| 678 $\pm$ 311 <sup>+1153</sup> <sub>-559</sub> | 4289 | 2, <sup>3</sup> AAIJ | 17C LHCB  | $B^+ \rightarrow J/\psi \phi K^+$              |
| 180 $\pm$ 70                                   |      | TIKHOMIROV 03        | SPEC      | 40.0 $\pi^- C \rightarrow K_S^0 K_S^0 K_L^0 X$ |
| 398 $\pm$ 47                                   | 241  | BIRD                 | 89 LASS - | 11 $K^- p \rightarrow \bar{K}^0 \pi^- p$       |

- <sup>1</sup> Seen in  $\psi(2S)$  decay with branching ratio  $\psi(2S) \rightarrow K^\pm X \rightarrow K^+ K^- \eta = (7.0 \pm 0.5^{+3.7}_{-0.6}) \times 10^{-6}$ .
- <sup>2</sup> From an amplitude analysis of the decay  $B^+ \rightarrow J/\psi \phi K^+$  with a significance of  $5.4 \sigma$ .
- <sup>3</sup> A reanalysis by AAIJ 21E using a larger data sample did not confirm this measurement, the new result having a significance of only  $1.6 \sigma$ .

NODE=M104W;LINKAGE=C

NODE=M104W;LINKAGE=B

NODE=M104W;LINKAGE=E

 **$K_2^*(1980)$  DECAY MODES**

NODE=M104215;NODE=M104

| Mode                     | Fraction ( $\Gamma_i/\Gamma$ ) |
|--------------------------|--------------------------------|
| $\Gamma_1$ $K^*(892)\pi$ | possibly seen                  |
| $\Gamma_2$ $K\rho$       | possibly seen                  |
| $\Gamma_3$ $K f_2(1270)$ | possibly seen                  |
| $\Gamma_4$ $K\phi$       | seen                           |
| $\Gamma_5$ $K\eta$       | seen                           |

DESIG=2

DESIG=3

DESIG=4

DESIG=5

DESIG=6

 **$K_2^*(1980)$  BRANCHING RATIOS**

NODE=M104220

 **$\Gamma(K^*(892)\pi)/\Gamma_{\text{total}}$**   **$\Gamma_1/\Gamma$** NODE=M104R01  
NODE=M104R01

| VALUE         | DOCUMENT ID | TECN | COMMENT                                       |
|---------------|-------------|------|-----------------------------------------------|
| possibly seen | GULER       | 11   | BELL $B^+ \rightarrow J/\psi K^+ \pi^+ \pi^-$ |

 **$\Gamma(K\rho)/\Gamma_{\text{total}}$**   **$\Gamma_2/\Gamma$** NODE=M104R02  
NODE=M104R02

| VALUE         | DOCUMENT ID | TECN | COMMENT                                       |
|---------------|-------------|------|-----------------------------------------------|
| possibly seen | GULER       | 11   | BELL $B^+ \rightarrow J/\psi K^+ \pi^+ \pi^-$ |

 **$\Gamma(K\rho)/\Gamma(K^*(892)\pi)$**   **$\Gamma_2/\Gamma_1$** NODE=M104R1  
NODE=M104R1

| VALUE                                      | DOCUMENT ID | TECN | CHG  | COMMENT                                          |
|--------------------------------------------|-------------|------|------|--------------------------------------------------|
| <b><math>1.49 \pm 0.24 \pm 0.09</math></b> | ASTON       | 87   | LASS | 0 11 $K^- p \rightarrow \bar{K}^0 \pi^+ \pi^- n$ |

 **$\Gamma(K f_2(1270))/\Gamma_{\text{total}}$**   **$\Gamma_3/\Gamma$** NODE=M104R3  
NODE=M104R3

| VALUE         | DOCUMENT ID   | TECN | COMMENT                                        |
|---------------|---------------|------|------------------------------------------------|
| possibly seen | TIKHOMIROV 03 | SPEC | 40.0 $\pi^- C \rightarrow K_S^0 K_S^0 K_L^0 X$ |

 **$\Gamma(K\phi)/\Gamma_{\text{total}}$**   **$\Gamma_4/\Gamma$** NODE=M104R00  
NODE=M104R00

| VALUE | EVTS | DOCUMENT ID | TECN     | COMMENT                           |
|-------|------|-------------|----------|-----------------------------------|
| seen  | 4289 | 1,2 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  $5.4 \sigma$ .

NODE=M104R00;LINKAGE=A

- <sup>2</sup> A reanalysis by AAIJ 21E using a larger data sample did not confirm this measurement, the new result having a significance of only  $1.6 \sigma$ .

NODE=M104R00;LINKAGE=C

| $\Gamma(K\eta)/\Gamma_{\text{total}}$ |      |                      |          |                                     | $\Gamma_5/\Gamma$ |
|---------------------------------------|------|----------------------|----------|-------------------------------------|-------------------|
| VALUE                                 | EVTS | DOCUMENT ID          | TECN     | COMMENT                             |                   |
| seen                                  | 1.8k | <sup>1</sup> ABLIKIM | 20F BES3 | $\psi(2S) \rightarrow K^+ K^- \eta$ |                   |
| seen                                  | 116k | <sup>2</sup> CHEN    | 20A BELL | $D^0 \rightarrow K^- \pi^+ \eta$    |                   |

<sup>1</sup> Seen decaying to  $K\eta$  in an amplitude analysis of  $\psi(2S) \rightarrow K^+ K^- \eta$ .  
<sup>2</sup> From an amplitude analysis of the decay  $D^0 \rightarrow K^- \pi^+ \eta$  with a significance of 17  $\sigma$ .

NODE=M104R03  
NODE=M104R03  
  
NODE=M104R03;LINKAGE=A  
NODE=M104R03;LINKAGE=B

**$K_2^*(1980)$  REFERENCES**

|            |      |                             |                               |                          |
|------------|------|-----------------------------|-------------------------------|--------------------------|
| AAIJ       | 21E  | PRL 127 082001              | R. Aaij <i>et al.</i>         | (LHCb Collab.)           |
| ABLIKIM    | 20F  | PR D101 032008              | M. Ablikim <i>et al.</i>      | (BESIII Collab.)         |
| CHEN       | 20A  | PR D102 012002              | Y.Q. Chen <i>et al.</i>       | (BELLE Collab.)          |
| ABLIKIM    | 19AQ | PR D100 032004              | M. Ablikim <i>et al.</i>      | (BESIII 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.)           |
| GULER      | 11   | PR D83 032005               | H. Guler <i>et al.</i>        | (BELLE Collab.)          |
| TIKHOMIROV | 03   | PAN 66 828                  | G.D. Tikhomirov <i>et al.</i> |                          |
|            |      | Translated from YAF 66 860. |                               |                          |
| BIRD       | 89   | SLAC-332                    | P.F. Bird                     | (SLAC)                   |
| ASTON      | 87   | NP B292 693                 | D. Aston <i>et al.</i>        | (SLAC, NAGO, CINC, INUS) |

NODE=M104  
  
REFID=61150  
REFID=60256  
REFID=60333  
REFID=59909  
REFID=57657  
REFID=57636  
REFID=53668  
REFID=49423  
  
REFID=41002  
REFID=40234