

$\eta_2(1645)$

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

$\eta_2(1645)$  MASS

| VALUE (MeV)                                                                   | DOCUMENT ID | TECN | CHG    | COMMENT                                       |
|-------------------------------------------------------------------------------|-------------|------|--------|-----------------------------------------------|
| <b>1617± 5 OUR AVERAGE</b>                                                    |             |      |        |                                               |
| 1613± 8                                                                       | BARBERIS    | 00B  |        | 450 $pp \rightarrow p_f \eta \pi^+ \pi^- p_s$ |
| 1617± 8                                                                       | BARBERIS    | 00C  |        | 450 $pp \rightarrow p_f 4\pi p_s$             |
| 1620±20                                                                       | BARBERIS    | 97B  | OMEG   | 450 $pp \rightarrow p p 2(\pi^+ \pi^-)$       |
| 1645±14±15                                                                    | ADOMEIT     | 96   | CBAR 0 | 1.94 $\bar{p}p \rightarrow \eta 3\pi^0$       |
| • • • We do not use the following data for averages, fits, limits, etc. • • • |             |      |        |                                               |
| 1645± 6±20                                                                    | ANISOVICH   | 00E  | SPEC   | 0.9–1.94 $\bar{p}p \rightarrow \eta 3\pi^0$   |

$\eta_2(1645)$  WIDTH

| VALUE (MeV)                                                                   | DOCUMENT ID | TECN | CHG    | COMMENT                                       |
|-------------------------------------------------------------------------------|-------------|------|--------|-----------------------------------------------|
| <b>181±11 OUR AVERAGE</b>                                                     |             |      |        |                                               |
| 185±17                                                                        | BARBERIS    | 00B  |        | 450 $pp \rightarrow p_f \eta \pi^+ \pi^- p_s$ |
| 177±18                                                                        | BARBERIS    | 00C  |        | 450 $pp \rightarrow p_f 4\pi p_s$             |
| 180±25                                                                        | BARBERIS    | 97B  | OMEG   | 450 $pp \rightarrow p p 2(\pi^+ \pi^-)$       |
| 180 <sup>+40</sup> <sub>−21</sub> ±25                                         | ADOMEIT     | 96   | CBAR 0 | 1.94 $\bar{p}p \rightarrow \eta 3\pi^0$       |
| • • • We do not use the following data for averages, fits, limits, etc. • • • |             |      |        |                                               |
| 200±25                                                                        | ANISOVICH   | 00E  | SPEC   | 0.9–1.94 $\bar{p}p \rightarrow \eta 3\pi^0$   |

$\eta_2(1645)$  DECAY MODES

| Mode                        | Fraction ( $\Gamma_i/\Gamma$ ) |
|-----------------------------|--------------------------------|
| $\Gamma_1$ $a_2(1320)\pi$   | seen                           |
| $\Gamma_2$ $K\bar{K}\pi$    | seen                           |
| $\Gamma_3$ $K^*\bar{K}$     | seen                           |
| $\Gamma_4$ $\eta\pi^+\pi^-$ | seen                           |
| $\Gamma_5$ $a_0(980)\pi$    | seen                           |
| $\Gamma_6$ $f_2(1270)\eta$  | not seen                       |

$\eta_2(1645)$  BRANCHING RATIOS

| $\Gamma(K\bar{K}\pi)/\Gamma(a_2(1320)\pi)$ | $\Gamma_2/\Gamma_1$   |      |                                         |
|--------------------------------------------|-----------------------|------|-----------------------------------------|
| VALUE                                      | DOCUMENT ID           | TECN | COMMENT                                 |
| <b>0.07±0.03</b>                           | <sup>1</sup> BARBERIS | 97C  | OMEG 450 $pp \rightarrow ppK\bar{K}\pi$ |

<sup>1</sup> Using  $2(\pi^+\pi^-)$  data from BARBERIS 97B.

| $\Gamma(a_2(1320)\pi)/\Gamma(a_0(980)\pi)$               |                        |      |                                               | $\Gamma_1/\Gamma_5$ |
|----------------------------------------------------------|------------------------|------|-----------------------------------------------|---------------------|
| VALUE                                                    | DOCUMENT ID            | TECN | COMMENT                                       |                     |
| <b>13.1±2.3 OUR AVERAGE</b>                              |                        |      |                                               |                     |
| 13.5±4.6                                                 | <sup>2</sup> ANISOVICH | 11   | SPEC                                          | 0.9–1.94 $p\bar{p}$ |
| 13.0±2.7                                                 | BARBERIS               | 00B  | 450 $pp \rightarrow p_f \eta \pi^+ \pi^- p_S$ |                     |
| <sup>2</sup> Reanalysis of ADOMEIT 96 and ANISOVICH 00E. |                        |      |                                               |                     |

| $\Gamma(f_2(1270)\eta)/\Gamma_{\text{total}}$                                 |             |         |     | $\Gamma_6/\Gamma$                          |
|-------------------------------------------------------------------------------|-------------|---------|-----|--------------------------------------------|
| VALUE                                                                         | DOCUMENT ID | COMMENT |     |                                            |
| • • • We do not use the following data for averages, fits, limits, etc. • • • |             |         |     |                                            |
| not seen                                                                      | BARBERIS    | 00B     | 450 | $p p \rightarrow p_f \eta \pi^+ \pi^- p_S$ |

$\eta_2(1645)$  REFERENCES

|           |     |              |                              |                          |
|-----------|-----|--------------|------------------------------|--------------------------|
| ANISOVICH | 11  | EPJ C71 1511 | A.V. Anisovich <i>et al.</i> | (LOQM, RAL, PNPI)        |
| ANISOVICH | 00E | PL B477 19   | A.V. Anisovich <i>et al.</i> |                          |
| 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  | 97B | PL B413 217  | D. Barberis <i>et al.</i>    | (WA 102 Collab.)         |
| BARBERIS  | 97C | PL B413 225  | D. Barberis <i>et al.</i>    | (WA 102 Collab.)         |
| ADOMEIT   | 96  | ZPHY C71 227 | J. Adomeit <i>et al.</i>     | (Crystal Barrel Collab.) |