

$\omega_3(1670)$ 

$$I^G(J^{PC}) = 0^-(3^--)$$

 **$\omega_3(1670)$  MASS**

| VALUE (MeV)                                                                   | EVTS  | DOCUMENT ID           | TECN | COMMENT                                          |
|-------------------------------------------------------------------------------|-------|-----------------------|------|--------------------------------------------------|
| <b>1667 ± 4 OUR AVERAGE</b>                                                   |       |                       |      |                                                  |
| 1665.3 ± 5.2 ± 4.5                                                            | 23400 | AMELIN                | 96   | VES 36 $\pi^- p \rightarrow \pi^+ \pi^- \pi^0 n$ |
| 1685 ± 20                                                                     | 60    | BAUBILLIER            | 79   | HBC 8.2 $K^- p$ backward                         |
| 1673 ± 12                                                                     | 430   | <sup>1,2</sup> BALTAY | 78E  | HBC 15 $\pi^+ p \rightarrow \Delta 3\pi$         |
| 1650 ± 12                                                                     |       | CORDEN                | 78B  | OMEG 8-12 $\pi^- p \rightarrow N 3\pi$           |
| 1669 ± 11                                                                     | 600   | <sup>2</sup> WAGNER   | 75   | HBC 7 $\pi^+ p \rightarrow \Delta^{++} 3\pi$     |
| 1678 ± 14                                                                     | 500   | DIAZ                  | 74   | DBC 6 $\pi^+ n \rightarrow p 3\pi^0$             |
| 1660 ± 13                                                                     | 200   | DIAZ                  | 74   | DBC 6 $\pi^+ n \rightarrow p \omega \pi^0 \pi^0$ |
| 1679 ± 17                                                                     | 200   | MATTHEWS              | 71D  | DBC 7.0 $\pi^+ n \rightarrow p 3\pi^0$           |
| 1670 ± 20                                                                     |       | KENYON                | 69   | DBC 8 $\pi^+ n \rightarrow p 3\pi^0$             |
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● |       |                       |      |                                                  |
| ~ 1700                                                                        | 110   | <sup>1</sup> CERRADA  | 77B  | HBC 4.2 $K^- p \rightarrow \Lambda 3\pi$         |
| 1695 ± 20                                                                     |       | BARNES                | 69B  | HBC 4.6 $K^- p \rightarrow \omega 2\pi X$        |
| 1636 ± 20                                                                     |       | ARMENISE              | 68B  | DBC 5.1 $\pi^+ n \rightarrow p 3\pi^0$           |
| <sup>1</sup> Phase rotation seen for $J^P = 3^- \rho\pi$ wave.                |       |                       |      |                                                  |
| <sup>2</sup> From a fit to $I(J^P) = 0(3^-) \rho\pi$ partial wave.            |       |                       |      |                                                  |

 **$\omega_3(1670)$  WIDTH**

| VALUE (MeV)                                                                                             | EVTS  | DOCUMENT ID             | TECN | COMMENT                                          |
|---------------------------------------------------------------------------------------------------------|-------|-------------------------|------|--------------------------------------------------|
| <b>168 ± 10 OUR AVERAGE</b>                                                                             |       |                         |      |                                                  |
| 149 ± 19 ± 7                                                                                            | 23400 | AMELIN                  | 96   | VES 36 $\pi^- p \rightarrow \pi^+ \pi^- \pi^0 n$ |
| 160 ± 80                                                                                                | 60    | <sup>3</sup> BAUBILLIER | 79   | HBC 8.2 $K^- p$ backward                         |
| 173 ± 16                                                                                                | 430   | <sup>4,5</sup> BALTAY   | 78E  | HBC 15 $\pi^+ p \rightarrow \Delta 3\pi$         |
| 253 ± 39                                                                                                |       | CORDEN                  | 78B  | OMEG 8-12 $\pi^- p \rightarrow N 3\pi$           |
| 173 ± 28                                                                                                | 600   | <sup>3,5</sup> WAGNER   | 75   | HBC 7 $\pi^+ p \rightarrow \Delta^{++} 3\pi$     |
| 167 ± 40                                                                                                | 500   | DIAZ                    | 74   | DBC 6 $\pi^+ n \rightarrow p 3\pi^0$             |
| 122 ± 39                                                                                                | 200   | DIAZ                    | 74   | DBC 6 $\pi^+ n \rightarrow p \omega \pi^0 \pi^0$ |
| 155 ± 40                                                                                                | 200   | <sup>3</sup> MATTHEWS   | 71D  | DBC 7.0 $\pi^+ n \rightarrow p 3\pi^0$           |
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●                           |       |                         |      |                                                  |
| 90 ± 20                                                                                                 |       | BARNES                  | 69B  | HBC 4.6 $K^- p \rightarrow \omega 2\pi$          |
| 100 ± 40                                                                                                |       | KENYON                  | 69   | DBC 8 $\pi^+ n \rightarrow p 3\pi^0$             |
| 112 ± 60                                                                                                |       | ARMENISE                | 68B  | DBC 5.1 $\pi^+ n \rightarrow p 3\pi^0$           |
| <sup>3</sup> Width errors enlarged by us to $4\Gamma/\sqrt{N}$ ; see the note with the $K^*(892)$ mass. |       |                         |      |                                                  |
| <sup>4</sup> Phase rotation seen for $J^P = 3^- \rho\pi$ wave.                                          |       |                         |      |                                                  |
| <sup>5</sup> From a fit to $I(J^P) = 0(3^-) \rho\pi$ partial wave.                                      |       |                         |      |                                                  |

## $\omega_3(1670)$ DECAY MODES

| Mode                      | Fraction ( $\Gamma_i/\Gamma$ ) |
|---------------------------|--------------------------------|
| $\Gamma_1$ $\rho\pi$      | seen                           |
| $\Gamma_2$ $\omega\pi\pi$ | seen                           |
| $\Gamma_3$ $b_1(1235)\pi$ | possibly seen                  |

## $\omega_3(1670)$ BRANCHING RATIOS

### $\Gamma(\omega\pi\pi)/\Gamma(\rho\pi)$ $\Gamma_2/\Gamma_1$

| VALUE | EVTS | DOCUMENT ID | TECN | COMMENT |
|-------|------|-------------|------|---------|
|-------|------|-------------|------|---------|

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

|           |     |      |    |     |                                 |
|-----------|-----|------|----|-----|---------------------------------|
| 0.71±0.27 | 100 | DIAZ | 74 | DBC | 6 $\pi^+ n \rightarrow p5\pi^0$ |
|-----------|-----|------|----|-----|---------------------------------|

### $\Gamma(b_1(1235)\pi)/\Gamma(\rho\pi)$ $\Gamma_3/\Gamma_1$

| VALUE | DOCUMENT ID | TECN | COMMENT |
|-------|-------------|------|---------|
|-------|-------------|------|---------|

|               |      |    |     |                                 |
|---------------|------|----|-----|---------------------------------|
| possibly seen | DIAZ | 74 | DBC | 6 $\pi^+ n \rightarrow p5\pi^0$ |
|---------------|------|----|-----|---------------------------------|

### $\Gamma(b_1(1235)\pi)/\Gamma(\omega\pi\pi)$ $\Gamma_3/\Gamma_2$

| VALUE | CL% | DOCUMENT ID | TECN | COMMENT |
|-------|-----|-------------|------|---------|
|-------|-----|-------------|------|---------|

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

|       |    |            |    |     |                      |
|-------|----|------------|----|-----|----------------------|
| >0.75 | 68 | BAUBILLIER | 79 | HBC | 8.2 $K^- p$ backward |
|-------|----|------------|----|-----|----------------------|

## $\omega_3(1670)$ REFERENCES

|            |     |             |                                     |                        |
|------------|-----|-------------|-------------------------------------|------------------------|
| AMELIN     | 96  | ZPHY C70 71 | D.V. Amelin <i>et al.</i>           | (SERP, TBIL)           |
| BAUBILLIER | 79  | PL 89B 131  | M. Baubillier <i>et al.</i>         | (BIRM, CERN, GLAS+)    |
| BALTAY     | 78E | PRL 40 87   | C. Baltay, C.V. Cautis, M. Kalelkar | (COLU) JP              |
| CORDEN     | 78B | NP B138 235 | M.J. Corden <i>et al.</i>           | (BIRM, RHEL, TELA+)    |
| CERRADA    | 77B | NP B126 241 | M. Cerrada <i>et al.</i>            | (AMST, CERN, NIJM+) JP |
| WAGNER     | 75  | PL 58B 201  | F. Wagner, M. Tabak, D.M. Chew      | (LBL) JP               |
| DIAZ       | 74  | PRL 32 260  | J. Diaz <i>et al.</i>               | (CASE, CMU)            |
| MATTHEWS   | 71D | PR D3 2561  | J.A.J. Matthews <i>et al.</i>       | (TNTO, WISC)           |
| BARNES     | 69B | PRL 23 142  | V.E. Barnes <i>et al.</i>           | (BNL)                  |
| KENYON     | 69  | PRL 23 146  | I.R. Kenyon <i>et al.</i>           | (BNL, UCND, ORNL)      |
| ARMENISE   | 68B | PL 26B 336  | N. Armenise <i>et al.</i>           | (BARI, BGNA, FIRZ+)    |