

$\pi_1(1400)$

$$I^G(J^{PC}) = 1^-(1^-+)$$

See also the mini-review under non- $q\bar{q}$  candidates. (See the index for the page number.)

### $\pi_1(1400)$ MASS

| VALUE (MeV)   | DOCUMENT ID           | TECN | CHG    | COMMENT                                   |
|---|-----------------------|------|--------|---|
| <b>1376 ±17 OUR AVERAGE</b>   |                       |      |        |   |
| 1360 ±25  | ABELE                 | 99   | CBAR   | 0.0 $\bar{p}p \rightarrow \pi^0\pi^0\eta$ |
| 1400 ±20 ±20  | ABELE                 | 98B  | CBAR   | 0.0 $\bar{p}n \rightarrow \pi^-\pi^0\eta$ |
| 1370 ±16 $^{+50}_{-30}$   | <sup>1</sup> THOMPSON | 97   | MPS    | 18 $\pi^-p \rightarrow \eta\pi^-p$        |
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● |                       |      |        |   |
| 1323.1 ± 4.6  | <sup>2</sup> AOYAGI   | 93   | BKEI   | $\pi^-p \rightarrow \eta\pi^-p$           |
| 1406 ±20  | <sup>3</sup> ALDE     | 88B  | GAM4 0 | 100 $\pi^-p \rightarrow \eta\pi^0n$       |

<sup>1</sup> Natural parity exchange, questioned by DZIERBA 03.

<sup>2</sup> Unnatural parity exchange.

<sup>3</sup> Seen in the  $P_0$ -wave intensity of the  $\eta\pi^0$  system, unnatural parity exchange.

### $\pi_1(1400)$ WIDTH

| VALUE (MeV)   | DOCUMENT ID           | TECN | CHG    | COMMENT                                   |
|---|-----------------------|------|--------|---|
| <b>300 ±40 OUR AVERAGE</b>  |                       |      |        |   |
| 220 ±90   | ABELE                 | 99   | CBAR   | 0.0 $\bar{p}p \rightarrow \pi^0\pi^0\eta$ |
| 310 ±50 $^{+50}_{-30}$  | ABELE                 | 98B  | CBAR   | 0.0 $\bar{p}n \rightarrow \pi^-\pi^0\eta$ |
| 385 ±40 $^{+65}_{-105}$   | <sup>4</sup> THOMPSON | 97   | MPS    | 18 $\pi^-p \rightarrow \eta\pi^-p$        |
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● |                       |      |        |   |
| 143.2 ±12.5   | <sup>5</sup> AOYAGI   | 93   | BKEI   | $\pi^-p \rightarrow \eta\pi^-p$           |
| 180 ±20   | <sup>6</sup> ALDE     | 88B  | GAM4 0 | 100 $\pi^-p \rightarrow \eta\pi^0n$       |

<sup>4</sup> Resolution is not unfolded, natural parity exchange, questioned by DZIERBA 03.

<sup>5</sup> Unnatural parity exchange.

<sup>6</sup> Seen in the  $P_0$ -wave intensity of the  $\eta\pi^0$  system, unnatural parity exchange.

## $\pi_1(1400)$ DECAY MODES

| Mode                       | Fraction ( $\Gamma_i/\Gamma$ ) |
|----------------------------|--------------------------------|
| $\Gamma_1 \quad \eta\pi^0$ | seen                           |
| $\Gamma_2 \quad \eta\pi^-$ | seen                           |
| $\Gamma_3 \quad \eta'\pi$  |                                |

## $\pi_1(1400)$ BRANCHING RATIOS

$\Gamma(\eta\pi^0)/\Gamma_{\text{total}}$   $\Gamma_1/\Gamma$

| VALUE   | DOCUMENT ID       | TECN | CHG    | COMMENT                               |
|---|-------------------|------|--------|---------------------------------------|
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● |                   |      |        |                                       |
| not seen  | PROKOSHKIN 95B    | GAM4 |        | 100 $\pi^- p \rightarrow \eta\pi^0 n$ |
| not seen  | <sup>7</sup> BUGG | 94   | RVUE   | $\bar{p}p \rightarrow \eta 2\pi^0$    |
| not seen  | <sup>8</sup> APEL | 81   | NICE 0 | 40 $\pi^- p \rightarrow \eta\pi^0 n$  |

<sup>7</sup> Using Crystal Barrel data.

<sup>8</sup> A general fit allowing *S*, *D*, and *P* waves (including *m*=0) is not done because of limited statistics.

$\Gamma(\eta\pi^-)/\Gamma_{\text{total}}$   $\Gamma_2/\Gamma$

| VALUE   | DOCUMENT ID  | TECN | COMMENT                             |
|---|--------------|------|-------------------------------------|
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● |              |      |                                     |
| possibly seen   | BELADIDZE 93 | VES  | $37\pi^- N \rightarrow \eta\pi^- N$ |

$\Gamma(\eta'\pi)/\Gamma(\eta\pi^0)$   $\Gamma_3/\Gamma_1$

| VALUE   | CL% | DOCUMENT ID  | TECN | COMMENT                             |
|---|-----|--------------|------|-------------------------------------|
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● |     |              |      |                                     |
| <0.80   | 95  | BOUTEMEUR 90 | GAM4 | 100 $\pi^- p \rightarrow 4\gamma n$ |

## $\pi_1(1400)$ REFERENCES

|                |                             |                                |                                |
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| ABELE 99       | PL B446 349                 | A. Abele <i>et al.</i>         | (Crystal Barrel Collab.)       |
| ABELE 98B      | PL B423 175                 | A. Abele <i>et al.</i>         | (Crystal Barrel Collab.)       |
| THOMPSON 97    | PRL 79 1630                 | D.R. Thompson <i>et al.</i>    | (E852 Collab.)                 |
| PROKOSHKIN 95B | PAN 58 606                  | Y.D. Prokoshkin, S.A. Sadovsky | (SERP)                         |
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