

# N(1900) P<sub>13</sub>

$$I(J^P) = \frac{1}{2}(\frac{3}{2}^+) \text{ Status: } **$$

OMITTED FROM SUMMARY TABLE

The latest GWU analysis (ARNDT 06) finds no evidence for this resonance.

## N(1900) BREIT-WIGNER MASS

| VALUE (MeV)   | DOCUMENT ID | TECN | COMMENT                                    |
|---|-------------|------|--|
| <b>≈ 1900 OUR ESTIMATE</b>  |             |      |  |
| 1915 ± 60   | NIKONOV     | 08   | DPWA Multichannel                          |
| 1879 ± 17   | MANLEY      | 92   | IPWA $\pi N \rightarrow \pi N$ & $N\pi\pi$ |
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● |             |      |  |
| 1951 ± 53   | PENNER      | 02C  | DPWA Multichannel                          |

## N(1900) BREIT-WIGNER WIDTH

| VALUE (MeV)   | DOCUMENT ID | TECN | COMMENT                                    |
|---|-------------|------|--|
| 180 ± 40  | NIKONOV     | 08   | DPWA Multichannel                          |
| 498 ± 78  | MANLEY      | 92   | IPWA $\pi N \rightarrow \pi N$ & $N\pi\pi$ |
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● |             |      |  |
| 622 ± 42  | PENNER      | 02C  | DPWA Multichannel                          |

## N(1900) DECAY MODES

| Mode                                     | Fraction ( $\Gamma_i/\Gamma$ ) |
|--|--------------------------------|
| $\Gamma_1$ $N\pi$                        |                                |
| $\Gamma_2$ $N\pi\pi$                     |                                |
| $\Gamma_3$ $N\rho, S=1/2, P\text{-wave}$ |                                |
| $\Gamma_4$ $N\eta$                       | (14 ± 5) %                     |
| $\Gamma_5$ $N\omega$                     | (39 ± 9) %                     |
| $\Gamma_6$ $\Lambda K$                   | ( 2.40 ± 0.30) %               |
| $\Gamma_7$ $\Sigma K$                    |                                |

## N(1900) BRANCHING RATIOS

| $\Gamma(N\pi)/\Gamma_{\text{total}}$  | DOCUMENT ID | TECN | COMMENT                                    | $\Gamma_1/\Gamma$ |
|---|-------------|------|--|-------------------|
| 0.26 ± 0.06   | MANLEY      | 92   | IPWA $\pi N \rightarrow \pi N$ & $N\pi\pi$ |                   |
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● |             |      |  |                   |
| 0.02 - 0.09   | NIKONOV     | 08   | DPWA Multichannel                          |                   |
| 0.16 ± 0.02   | PENNER      | 02C  | DPWA Multichannel                          |                   |
| $\Gamma(N\eta)/\Gamma_{\text{total}}$   |             |      |  | $\Gamma_4/\Gamma$ |
| 0.14 ± 0.05   | PENNER      | 02C  | DPWA Multichannel                          |                   |

| $\Gamma(N\omega)/\Gamma_{\text{total}}$ |                    |             |                | $\Gamma_5/\Gamma$ |
|---|--------------------|-------------|----------------|-------------------|
| <u>VALUE</u>                            | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> |                   |
| <b>0.39±0.09</b>                        | PENNER             | 02C         | DPWA           | Multichannel      |

| $(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\pi \rightarrow N(1900) \rightarrow N\rho, S=1/2, P\text{-wave}$ |                    |             |                | $(\Gamma_1\Gamma_3)^{1/2}/\Gamma$        |
|--|--------------------|-------------|----------------|--|
| <u>VALUE</u>   | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> |  |
| $-0.34 \pm 0.03$   | MANLEY             | 92          | IPWA           | $\pi N \rightarrow \pi N \ \& \ N\pi\pi$ |

| $\Gamma(\Lambda K)/\Gamma_{\text{total}}$                                     |                    |             |                | $\Gamma_6/\Gamma$ |
|---|--------------------|-------------|----------------|-------------------|
| <u>VALUE</u>  | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> |                   |
| <b>0.024±0.003</b>  | SHKLYAR            | 05          | DPWA           | Multichannel      |
| • • • We do not use the following data for averages, fits, limits, etc. • • • |                    |             |                |                   |
| 0.05 - 0.15   | NIKONOV            | 08          | DPWA           | Multichannel      |
| 0.001±0.001   | PENNER             | 02C         | DPWA           | Multichannel      |

| $\Gamma(\Sigma K)/\Gamma_{\text{total}}$                                      |                    |             |                | $\Gamma_7/\Gamma$ |
|---|--------------------|-------------|----------------|-------------------|
| <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. • • • |                    |             |                |                   |
| 0.01±0.01   | PENNER             | 02C         | DPWA           | Multichannel      |

### **$N(1900)$ PHOTON DECAY AMPLITUDES**

Papers on  $\gamma N$  amplitudes predating 1981 may be found in our 2006 edition, Journal of Physics, G **33** 1 (2006).

#### **$N(1900) \rightarrow p\gamma$ , helicity-1/2 amplitude $A_{1/2}$**

| <u>VALUE (GeV<sup>-1/2</sup>)</u>   | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> |              |
|---|--------------------|-------------|----------------|--------------|
| • • • We do not use the following data for averages, fits, limits, etc. • • • |                    |             |                |              |
| -0.017  | PENNER             | 02D         | DPWA           | Multichannel |

#### **$N(1900) \rightarrow p\gamma$ , helicity-3/2 amplitude $A_{3/2}$**

| <u>VALUE (GeV<sup>-1/2</sup>)</u>   | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> |              |
|---|--------------------|-------------|----------------|--------------|
| • • • We do not use the following data for averages, fits, limits, etc. • • • |                    |             |                |              |
| 0.031   | PENNER             | 02D         | DPWA           | Multichannel |

#### **$N(1900) \rightarrow n\gamma$ , helicity-1/2 amplitude $A_{1/2}$**

| <u>VALUE (GeV<sup>-1/2</sup>)</u>   | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> |              |
|---|--------------------|-------------|----------------|--------------|
| • • • We do not use the following data for averages, fits, limits, etc. • • • |                    |             |                |              |
| -0.016  | PENNER             | 02D         | DPWA           | Multichannel |

#### **$N(1900) \rightarrow n\gamma$ , helicity-3/2 amplitude $A_{3/2}$**

| <u>VALUE (GeV<sup>-1/2</sup>)</u>   | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u> |              |
|---|--------------------|-------------|----------------|--------------|
| • • • We do not use the following data for averages, fits, limits, etc. • • • |                    |             |                |              |
| -0.002  | PENNER             | 02D         | DPWA           | Multichannel |

## ***N*(1900) REFERENCES**

|         |     |               |                                 |                  |
|---------|-----|---------------|---------------------------------|------------------|
| NIKONOV | 08  | PL B662 245   | V.A. Nikonov <i>et al.</i>      | (Bonn, Gatchina) |
| ARNDT   | 06  | PR C74 045205 | R.A. Arndt <i>et al.</i>        | (GWU)            |
| PDG     | 06  | JPG 33 1      | W.-M. Yao <i>et al.</i>         | (PDG Collab.)    |
| SHKLYAR | 05  | PR C72 015210 | V. Shklyar, H. Lenske, U. Mosel | (GIES)           |
| PENNER  | 02C | PR C66 055211 | G. Penner, U. Mosel             | (GIES)           |
| PENNER  | 02D | PR C66 055212 | G. Penner, U. Mosel             | (GIES)           |
| MANLEY  | 92  | PR D45 4002   | D.M. Manley, E.M. Saleski       | (KENT)           |
| Also    |     | PR D30 904    | D.M. Manley <i>et al.</i>       | (VPI)            |

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