

$\Delta(1700) \ 3/2^-$

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

Older and obsolete values are listed and referenced in the 2014 edition, Chinese Physics **C38** 070001 (2014).

$\Delta(1700)$  POLE POSITION

REAL PART

| VALUE (MeV)                                                                   | DOCUMENT ID        | TECN | COMMENT                                |
|-------------------------------------------------------------------------------|--------------------|------|----------------------------------------|
| <b>1640 to 1690 (<math>\approx</math> 1665) OUR ESTIMATE</b>                  |                    |      |                                        |
| 1637 $\pm$ 32                                                                 | ROENCHEN           | 22   | DPWA Multichannel                      |
| 1685 $\pm$ 10                                                                 | SOKHOYAN           | 15A  | DPWA Multichannel                      |
| 1643 $\pm$ 6 $\pm$ 3                                                          | <sup>1</sup> SVARC | 14   | L+P $\pi N \rightarrow \pi N$          |
| 1675 $\pm$ 25                                                                 | CUTKOSKY           | 80   | IPWA $\pi N \rightarrow \pi N$         |
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● |                    |      |                                        |
| 1693                                                                          | HUNT               | 19   | DPWA Multichannel                      |
| 1677                                                                          | ROENCHEN           | 15A  | DPWA Multichannel                      |
| 1685 $\pm$ 10                                                                 | GUTZ               | 14   | DPWA Multichannel                      |
| 1680 $\pm$ 10                                                                 | ANISOVICH          | 12A  | DPWA Multichannel                      |
| 1632                                                                          | ARNDT              | 06   | DPWA $\pi N \rightarrow \pi N, \eta N$ |
| 1726                                                                          | VRANA              | 00   | DPWA Multichannel                      |
| 1651                                                                          | HOEHLER            | 93   | SPED $\pi N \rightarrow \pi N$         |

<sup>1</sup>Fit to the amplitudes of HOEHLER 79.

–2×IMAGINARY PART

| VALUE (MeV)                                                                   | DOCUMENT ID        | TECN | COMMENT                                |
|-------------------------------------------------------------------------------|--------------------|------|----------------------------------------|
| <b>200 to 300 (<math>\approx</math> 250) OUR ESTIMATE</b>                     |                    |      |                                        |
| 295 $\pm$ 29                                                                  | ROENCHEN           | 22   | DPWA Multichannel                      |
| 300 $\pm$ 15                                                                  | SOKHOYAN           | 15A  | DPWA Multichannel                      |
| 217 $\pm$ 10 $\pm$ 8                                                          | <sup>1</sup> SVARC | 14   | L+P $\pi N \rightarrow \pi N$          |
| 220 $\pm$ 40                                                                  | CUTKOSKY           | 80   | IPWA $\pi N \rightarrow \pi N$         |
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● |                    |      |                                        |
| 213                                                                           | HUNT               | 19   | DPWA Multichannel                      |
| 305                                                                           | ROENCHEN           | 15A  | DPWA Multichannel                      |
| 300 $\pm$ 15                                                                  | GUTZ               | 14   | DPWA Multichannel                      |
| 305 $\pm$ 15                                                                  | ANISOVICH          | 12A  | DPWA Multichannel                      |
| 253                                                                           | ARNDT              | 06   | DPWA $\pi N \rightarrow \pi N, \eta N$ |
| 118                                                                           | VRANA              | 00   | DPWA Multichannel                      |
| 159                                                                           | HOEHLER            | 93   | SPED $\pi N \rightarrow \pi N$         |

<sup>1</sup>Fit to the amplitudes of HOEHLER 79.

$\Delta(1700)$  ELASTIC POLE RESIDUE

MODULUS  $|r|$

| VALUE (MeV)                                            | DOCUMENT ID        | TECN | COMMENT                        |
|--------------------------------------------------------|--------------------|------|--------------------------------|
| <b>10 to 40 (<math>\approx</math> 25) OUR ESTIMATE</b> |                    |      |                                |
| 15 $\pm$ 12                                            | ROENCHEN           | 22   | DPWA Multichannel              |
| 40 $\pm$ 6                                             | SOKHOYAN           | 15A  | DPWA Multichannel              |
| 13 $\pm$ 1 $\pm$ 1                                     | <sup>1</sup> SVARC | 14   | L+P $\pi N \rightarrow \pi N$  |
| 13 $\pm$ 3                                             | CUTKOSKY           | 80   | IPWA $\pi N \rightarrow \pi N$ |

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

|        |           |     |      |                                   |
|--------|-----------|-----|------|-----------------------------------|
| 24     | ROENCHEN  | 15A | DPWA | Multichannel                      |
| 40 ± 6 | GUTZ      | 14  | DPWA | Multichannel                      |
| 42 ± 7 | ANISOVICH | 12A | DPWA | Multichannel                      |
| 18     | ARNDT     | 06  | DPWA | $\pi N \rightarrow \pi N, \eta N$ |
| 10     | HOEHLER   | 93  | SPED | $\pi N \rightarrow \pi N$         |

<sup>1</sup>Fit to the amplitudes of HOEHLER 79.

### PHASE $\theta$

| VALUE (°)                            | DOCUMENT ID        | TECN | COMMENT                                |
|--------------------------------------|--------------------|------|----------------------------------------|
| <b>−40 to 0 (≈ −20) OUR ESTIMATE</b> |                    |      |                                        |
| −13 ± 74                             | ROENCHEN           | 22   | DPWA Multichannel                      |
| −1 ± 10                              | SOKHOYAN           | 15A  | DPWA Multichannel                      |
| −30 ± 4 ± 3                          | <sup>1</sup> SVARC | 14   | L+P $\pi N \rightarrow \pi N$          |
| −40                                  | ARNDT              | 06   | DPWA $\pi N \rightarrow \pi N, \eta N$ |
| −20 ± 25                             | CUTKOSKY           | 80   | IPWA $\pi N \rightarrow \pi N$         |

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

|         |           |     |      |              |
|---------|-----------|-----|------|--------------|
| −7.3    | ROENCHEN  | 15A | DPWA | Multichannel |
| −1 ± 10 | GUTZ      | 14  | DPWA | Multichannel |
| −3 ± 15 | ANISOVICH | 12A | DPWA | Multichannel |

<sup>1</sup>Fit to the amplitudes of HOEHLER 79.

## $\Delta(1700)$ INELASTIC POLE RESIDUE

The “normalized residue” is the residue divided by  $\Gamma_{pole}/2$ .

### Normalized residue in $N\pi \rightarrow \Delta(1700) \rightarrow \Delta\eta$

| MODULUS                                                                       | PHASE (°) | DOCUMENT ID | TECN | COMMENT           |
|-------------------------------------------------------------------------------|-----------|-------------|------|-------------------|
| 0.12 ± 0.02                                                                   | −60 ± 12  | GUTZ        | 14   | DPWA Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • |           |             |      |                   |
| 0.12 ± 0.03                                                                   | −60 ± 15  | ANISOVICH   | 12A  | DPWA Multichannel |

### Normalized residue in $N\pi \rightarrow \Delta(1700) \rightarrow \Sigma K$

| MODULUS                                                                       | PHASE (°)         | DOCUMENT ID | TECN | COMMENT           |
|-------------------------------------------------------------------------------|-------------------|-------------|------|-------------------|
| <b>0.007 ± 0.008</b>                                                          | <b>−176 ± 160</b> | ROENCHEN    | 22   | DPWA Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • |                   |             |      |                   |
| 0.011                                                                         | −147              | ROENCHEN    | 15A  | DPWA Multichannel |

### Normalized residue in $N\pi \rightarrow \Delta(1700) \rightarrow N(1535)\pi$

| MODULUS       | PHASE (°) | DOCUMENT ID | TECN | COMMENT           |
|---------------|-----------|-------------|------|-------------------|
| 0.035 ± 0.015 | −75 ± 30  | GUTZ        | 14   | DPWA Multichannel |

### Normalized residue in $N\pi \rightarrow \Delta(1700) \rightarrow \Delta(1232)\pi$ , S-wave

| MODULUS                                                                       | PHASE (°) | DOCUMENT ID | TECN | COMMENT           |
|-------------------------------------------------------------------------------|-----------|-------------|------|-------------------|
| 0.20 ± 0.15                                                                   | 146 ± 133 | ROENCHEN    | 22   | DPWA Multichannel |
| 0.25 ± 0.12                                                                   | 135 ± 45  | SOKHOYAN    | 15A  | DPWA Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • |           |             |      |                   |
| 0.39                                                                          | 151       | ROENCHEN    | 15A  | DPWA Multichannel |

**Normalized residue in  $N\pi \rightarrow \Delta(1700) \rightarrow \Delta(1232)\pi$ ,  $D$ -wave**

| <i>MODULUS</i>                                                                | <i>PHASE (°)</i> | <i>DOCUMENT ID</i> | <i>TECN</i> | <i>COMMENT</i>    |
|-------------------------------------------------------------------------------|------------------|--------------------|-------------|-------------------|
| 0.038±0.039                                                                   | 127 ± 127        | ROENCHEN           | 22          | DPWA Multichannel |
| 0.12 ±0.06                                                                    | −160 ± 30        | SOKHOYAN           | 15A         | DPWA Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • |                  |                    |             |                   |
| 0.054                                                                         | 166              | ROENCHEN           | 15A         | DPWA Multichannel |

**Normalized residue in  $N\pi \rightarrow \Delta(1700) \rightarrow N(1520)\pi$ ,  $P$ -wave**

| <i>MODULUS</i> | <i>PHASE (°)</i> | <i>DOCUMENT ID</i> | <i>TECN</i> | <i>COMMENT</i>    |
|----------------|------------------|--------------------|-------------|-------------------|
| 0.10±0.03      | −10 ± 20         | SOKHOYAN           | 15A         | DPWA Multichannel |

**$\Delta(1700)$  BREIT-WIGNER MASS**

| <i>VALUE (MeV)</i>                                                            | <i>DOCUMENT ID</i>    | <i>TECN</i> | <i>COMMENT</i>                            |
|-------------------------------------------------------------------------------|-----------------------|-------------|-------------------------------------------|
| <b>1690 to 1730 (<math>\approx 1710</math>) OUR ESTIMATE</b>                  |                       |             |                                           |
| 1704 ± 8                                                                      | GOLOVATCH             | 19          | DPWA $\gamma p \rightarrow \pi^+ \pi^- p$ |
| 1720 ± 5                                                                      | <sup>1</sup> HUNT     | 19          | DPWA Multichannel                         |
| 1715 ±20                                                                      | SOKHOYAN              | 15A         | DPWA Multichannel                         |
| 1695.0± 1.3                                                                   | <sup>1</sup> ARNDT    | 06          | DPWA $\pi N \rightarrow \pi N, \eta N$    |
| 1710 ±30                                                                      | CUTKOSKY              | 80          | IPWA $\pi N \rightarrow \pi N$            |
| 1680 ±70                                                                      | HOEHLER               | 79          | IPWA $\pi N \rightarrow \pi N$            |
| • • • We do not use the following data for averages, fits, limits, etc. • • • |                       |             |                                           |
| 1715 ±20                                                                      | GUTZ                  | 14          | DPWA Multichannel                         |
| 1715 <sup>+30</sup><br>−15                                                    | ANISOVICH             | 12A         | DPWA Multichannel                         |
| 1691 ± 4                                                                      | <sup>1</sup> SHRESTHA | 12A         | DPWA Multichannel                         |
| 1678 ± 1                                                                      | PENNER                | 02C         | DPWA Multichannel                         |
| 1732 ±23                                                                      | VRANA                 | 00          | DPWA Multichannel                         |

<sup>1</sup>Statistical error only.

**$\Delta(1700)$  BREIT-WIGNER WIDTH**

| <i>VALUE (MeV)</i>                                                            | <i>DOCUMENT ID</i>    | <i>TECN</i> | <i>COMMENT</i>                            |
|-------------------------------------------------------------------------------|-----------------------|-------------|-------------------------------------------|
| <b>220 to 380 (<math>\approx 300</math>) OUR ESTIMATE</b>                     |                       |             |                                           |
| 295 ±35                                                                       | GOLOVATCH             | 19          | DPWA $\gamma p \rightarrow \pi^+ \pi^- p$ |
| 226 ±14                                                                       | <sup>1</sup> HUNT     | 19          | DPWA Multichannel                         |
| 300 ±25                                                                       | SOKHOYAN              | 15A         | DPWA Multichannel                         |
| 375.5± 7.0                                                                    | <sup>1</sup> ARNDT    | 06          | DPWA $\pi N \rightarrow \pi N, \eta N$    |
| 280 ±80                                                                       | CUTKOSKY              | 80          | IPWA $\pi N \rightarrow \pi N$            |
| 230 ±80                                                                       | HOEHLER               | 79          | IPWA $\pi N \rightarrow \pi N$            |
| • • • We do not use the following data for averages, fits, limits, etc. • • • |                       |             |                                           |
| 300 ±25                                                                       | GUTZ                  | 14          | DPWA Multichannel                         |
| 310 <sup>+40</sup><br>−15                                                     | ANISOVICH             | 12A         | DPWA Multichannel                         |
| 248 ± 9                                                                       | <sup>1</sup> SHRESTHA | 12A         | DPWA Multichannel                         |
| 606 ±15                                                                       | PENNER                | 02C         | DPWA Multichannel                         |
| 119 ±70                                                                       | VRANA                 | 00          | DPWA Multichannel                         |

<sup>1</sup>Statistical error only.

**$\Delta(1700)$  DECAY MODES**

The following branching fractions are our estimates, not fits or averages.

|               | Mode                          | Fraction ( $\Gamma_i/\Gamma$ ) |
|---------------|-------------------------------|--------------------------------|
| $\Gamma_1$    | $N\pi$                        | 10–20 %                        |
| $\Gamma_2$    | $N\pi\pi$                     | >31 %                          |
| $\Gamma_3$    | $\Delta(1232)\pi$             | 9–70 %                         |
| $\Gamma_4$    | $\Delta(1232)\pi$ , $S$ -wave | 5–54 %                         |
| $\Gamma_5$    | $\Delta(1232)\pi$ , $D$ -wave | 4–16 %                         |
| $\Gamma_6$    | $N\rho$ , $S=3/2$ , $S$ -wave | 22–32%                         |
| $\Gamma_7$    | $N(1520)\pi$ , $P$ -wave      | 1–5 %                          |
| $\Gamma_8$    | $N(1535)\pi$                  | 0.5–1.5 %                      |
| $\Gamma_9$    | $\Delta(1232)\eta$            | 3–7 %                          |
| $\Gamma_{10}$ | $N\gamma$                     | 0.22–0.60 %                    |
| $\Gamma_{11}$ | $N\gamma$ , helicity=1/2      | 0.12–0.30 %                    |
| $\Gamma_{12}$ | $N\gamma$ , helicity=3/2      | 0.10–0.30 %                    |

**$\Delta(1700)$  BRANCHING RATIOS**

| $\Gamma(N\pi)/\Gamma_{\text{total}}$                                          |              |             |      |         | $\Gamma_1/\Gamma$                 |
|-------------------------------------------------------------------------------|--------------|-------------|------|---------|-----------------------------------|
| VALUE (%)                                                                     |              | DOCUMENT ID | TECN | COMMENT |                                   |
| <b>10 to 20 OUR ESTIMATE</b>                                                  |              |             |      |         |                                   |
| 15 $\pm 2$                                                                    | <sup>1</sup> | HUNT        | 19   | DPWA    | Multichannel                      |
| 22 $\pm 4$                                                                    |              | SOKHOYAN    | 15A  | DPWA    | Multichannel                      |
| 15.6 $\pm$ 0.1                                                                | <sup>1</sup> | ARNDT       | 06   | DPWA    | $\pi N \rightarrow \pi N, \eta N$ |
| 12 $\pm 3$                                                                    |              | CUTKOSKY    | 80   | IPWA    | $\pi N \rightarrow \pi N$         |
| 20 $\pm 3$                                                                    |              | HOEHLER     | 79   | IPWA    | $\pi N \rightarrow \pi N$         |
| ● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ● |              |             |      |         |                                   |
| 22 $\pm 4$                                                                    |              | GUTZ        | 14   | DPWA    | Multichannel                      |
| 22 $\pm 4$                                                                    |              | ANISOVICH   | 12A  | DPWA    | Multichannel                      |
| 14 $\pm 1$                                                                    | <sup>1</sup> | SHRESTHA    | 12A  | DPWA    | Multichannel                      |
| 14 $\pm 1$                                                                    |              | PENNER      | 02C  | DPWA    | Multichannel                      |
| 5 $\pm 1$                                                                     |              | VRANA       | 00   | DPWA    | Multichannel                      |

<sup>1</sup>Statistical error only.

| $\Gamma(N\pi\pi)/\Gamma_{\text{total}}$ |  |             |      |         | $\Gamma_2/\Gamma$                  |
|-----------------------------------------|--|-------------|------|---------|------------------------------------|
| VALUE                                   |  | DOCUMENT ID | TECN | COMMENT |                                    |
| <b>0.89<math>\pm</math>0.11</b>         |  | GOLOVATCH   | 19   | DPWA    | $\gamma p \rightarrow \pi^+\pi^-p$ |

| $\Gamma(\Delta(1232)\pi, S\text{-wave})/\Gamma_{\text{total}}$ |              |             |      |         | $\Gamma_4/\Gamma$ |
|----------------------------------------------------------------|--------------|-------------|------|---------|-------------------|
| VALUE (%)                                                      |              | DOCUMENT ID | TECN | COMMENT |                   |
| 49 $\pm$ 5                                                     | <sup>1</sup> | HUNT        | 19   | DPWA    | Multichannel      |
| 20 $\pm$ 15                                                    |              | SOKHOYAN    | 15A  | DPWA    | Multichannel      |

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

|                  |                       |     |      |              |
|------------------|-----------------------|-----|------|--------------|
| $20^{+25}_{-13}$ | ANISOVICH             | 12A | DPWA | Multichannel |
| $54 \pm 3$       | <sup>1</sup> SHRESTHA | 12A | DPWA | Multichannel |
| $90 \pm 2$       | VRANA                 | 00  | DPWA | Multichannel |

<sup>1</sup>Statistical error only.

### $\Gamma(\Delta(1232)\pi, D\text{-wave})/\Gamma_{\text{total}}$

$\Gamma_5/\Gamma$

| VALUE (%)     | DOCUMENT ID       | TECN | COMMENT           |
|---------------|-------------------|------|-------------------|
| $7.6 \pm 0.3$ | <sup>1</sup> HUNT | 19   | DPWA Multichannel |
| $10 \pm 6$    | SOKHOYAN          | 15A  | DPWA Multichannel |

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

|                 |                       |     |      |              |
|-----------------|-----------------------|-----|------|--------------|
| $12^{+14}_{-7}$ | ANISOVICH             | 12A | DPWA | Multichannel |
| $1 \pm 1$       | <sup>1</sup> SHRESTHA | 12A | DPWA | Multichannel |
| $4 \pm 1$       | VRANA                 | 00  | DPWA | Multichannel |

<sup>1</sup>Statistical error only.

### $\Gamma(N\rho, S=3/2, S\text{-wave})/\Gamma_{\text{total}}$

$\Gamma_6/\Gamma$

| VALUE (%)  | DOCUMENT ID       | TECN | COMMENT           |
|------------|-------------------|------|-------------------|
| $27 \pm 5$ | <sup>1</sup> HUNT | 19   | DPWA Multichannel |

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

|            |                       |     |      |              |
|------------|-----------------------|-----|------|--------------|
| $30 \pm 3$ | <sup>1</sup> SHRESTHA | 12A | DPWA | Multichannel |
| $1 \pm 1$  | VRANA                 | 00  | DPWA | Multichannel |

<sup>1</sup>Statistical error only.

### $\Gamma(N(1520)\pi, P\text{-wave})/\Gamma_{\text{total}}$

$\Gamma_7/\Gamma$

| VALUE (%) | DOCUMENT ID | TECN | COMMENT           |
|-----------|-------------|------|-------------------|
| $3 \pm 2$ | SOKHOYAN    | 15A  | DPWA Multichannel |

### $\Gamma(N(1535)\pi)/\Gamma_{\text{total}}$

$\Gamma_8/\Gamma$

| VALUE (%)     | DOCUMENT ID | TECN | COMMENT           |
|---------------|-------------|------|-------------------|
| $1.0 \pm 0.5$ | GUTZ        | 14   | DPWA Multichannel |

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

|           |      |     |      |              |
|-----------|------|-----|------|--------------|
| $4 \pm 2$ | HORN | 08A | DPWA | Multichannel |
|-----------|------|-----|------|--------------|

### $\Gamma(\Delta(1232)\eta)/\Gamma_{\text{total}}$

$\Gamma_9/\Gamma$

| VALUE (%) | DOCUMENT ID | TECN | COMMENT           |
|-----------|-------------|------|-------------------|
| $5 \pm 2$ | GUTZ        | 14   | DPWA Multichannel |

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

|           |           |     |      |              |
|-----------|-----------|-----|------|--------------|
| $5 \pm 2$ | ANISOVICH | 12A | DPWA | Multichannel |
|-----------|-----------|-----|------|--------------|

### $\Gamma(N(1535)\pi)/\Gamma(\Delta(1232)\eta)$

$\Gamma_8/\Gamma_9$

| VALUE | DOCUMENT ID   | TECN | COMMENT                           |
|-------|---------------|------|-----------------------------------|
| 0.67  | KASHEVAROV 09 | CBAL | $\gamma p \rightarrow p\pi^0\eta$ |

**$\Delta(1700)$  PHOTON DECAY AMPLITUDES AT THE POLE** **$\Delta(1700) \rightarrow N\gamma$ , helicity-1/2 amplitude  $A_{1/2}$** 

| <u>MODULUS (<math>\text{GeV}^{-1/2}</math>)</u>                               | <u>PHASE (<math>^\circ</math>)</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u>    |
|-------------------------------------------------------------------------------|------------------------------------|--------------------|-------------|-------------------|
| $0.163 \pm 0.060$                                                             | $-4.4 \pm 39$                      | ROENCHEN           | 22          | DPWA Multichannel |
| $0.175 \pm 0.020$                                                             | $50 \pm 10$                        | SOKHOYAN           | 15A         | DPWA Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • |                                    |                    |             |                   |
| 0.123                                                                         | 1.1                                | ROENCHEN           | 15A         | DPWA Multichannel |

 **$\Delta(1700) \rightarrow N\gamma$ , helicity-3/2 amplitude  $A_{3/2}$** 

| <u>MODULUS (<math>\text{GeV}^{-1/2}</math>)</u>                               | <u>PHASE (<math>^\circ</math>)</u> | <u>DOCUMENT ID</u> | <u>TECN</u> | <u>COMMENT</u>    |
|-------------------------------------------------------------------------------|------------------------------------|--------------------|-------------|-------------------|
| $0.221 \pm 0.093$                                                             | $-12 \pm 40$                       | ROENCHEN           | 22          | DPWA Multichannel |
| $0.180 \pm 0.020$                                                             | $45 \pm 10$                        | SOKHOYAN           | 15A         | DPWA Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • |                                    |                    |             |                   |
| 0.124                                                                         | 22                                 | ROENCHEN           | 15A         | DPWA Multichannel |

 **$\Delta(1700)$  BREIT-WIGNER PHOTON DECAY AMPLITUDES** **$\Delta(1700) \rightarrow N\gamma$ , helicity-1/2 amplitude  $A_{1/2}$** 

| <u>VALUE (<math>\text{GeV}^{-1/2}</math>)</u>                                 | <u>DOCUMENT ID</u>        | <u>TECN</u> | <u>COMMENT</u>                       |
|-------------------------------------------------------------------------------|---------------------------|-------------|--------------------------------------|
| <b>0.100 to 0.160 (<math>\approx 0.130</math>) OUR ESTIMATE</b>               |                           |             |                                      |
| $0.0872 \pm 0.0189$                                                           | GOLOVATCH 19              | DPWA        | $\gamma p \rightarrow \pi^+ \pi^- p$ |
| $0.156 \pm 0.017$                                                             | <sup>1</sup> HUNT 19      | DPWA        | Multichannel                         |
| $0.165 \pm 0.020$                                                             | SOKHOYAN 15A              | DPWA        | Multichannel                         |
| $0.132 \pm 0.005$                                                             | <sup>1</sup> DUGGER 13    | DPWA        | $\gamma N \rightarrow \pi N$         |
| $0.105 \pm 0.005$                                                             | <sup>1</sup> WORKMAN 12A  | DPWA        | $\gamma N \rightarrow \pi N$         |
| • • • We do not use the following data for averages, fits, limits, etc. • • • |                           |             |                                      |
| $0.165 \pm 0.020$                                                             | GUTZ 14                   | DPWA        | Multichannel                         |
| $0.160 \pm 0.020$                                                             | ANISOVICH 12A             | DPWA        | Multichannel                         |
| $0.058 \pm 0.010$                                                             | <sup>1</sup> SHRESTHA 12A | DPWA        | Multichannel                         |
| 0.226                                                                         | DRECHSEL 07               | DPWA        | $\gamma N \rightarrow \pi N$         |
| $0.125 \pm 0.003$                                                             | DUGGER 07                 | DPWA        | $\gamma N \rightarrow \pi N$         |
| 0.096                                                                         | PENNER 02D                | DPWA        | Multichannel                         |

<sup>1</sup> Statistical error only. **$\Delta(1700) \rightarrow N\gamma$ , helicity-3/2 amplitude  $A_{3/2}$** 

| <u>VALUE (<math>\text{GeV}^{-1/2}</math>)</u>                   | <u>DOCUMENT ID</u>       | <u>TECN</u> | <u>COMMENT</u>                       |
|-----------------------------------------------------------------|--------------------------|-------------|--------------------------------------|
| <b>0.090 to 0.170 (<math>\approx 0.130</math>) OUR ESTIMATE</b> |                          |             |                                      |
| $0.0872 \pm 0.0164$                                             | GOLOVATCH 19             | DPWA        | $\gamma p \rightarrow \pi^+ \pi^- p$ |
| $0.0125 \pm 0.0016$                                             | <sup>1</sup> HUNT 19     | DPWA        | Multichannel                         |
| $0.170 \pm 0.025$                                               | SOKHOYAN 15A             | DPWA        | Multichannel                         |
| $0.108 \pm 0.005$                                               | <sup>1</sup> DUGGER 13   | DPWA        | $\gamma N \rightarrow \pi N$         |
| $0.092 \pm 0.004$                                               | <sup>1</sup> WORKMAN 12A | DPWA        | $\gamma N \rightarrow \pi N$         |

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

|                   |                       |     |      |                              |
|-------------------|-----------------------|-----|------|------------------------------|
| 0.170 $\pm 0.025$ | GUTZ                  | 14  | DPWA | Multichannel                 |
| 0.165 $\pm 0.025$ | ANISOVICH             | 12A | DPWA | Multichannel                 |
| 0.097 $\pm 0.008$ | <sup>1</sup> SHRESTHA | 12A | DPWA | Multichannel                 |
| 0.210             | DRECHSEL              | 07  | DPWA | $\gamma N \rightarrow \pi N$ |
| 0.105 $\pm 0.003$ | DUGGER                | 07  | DPWA | $\gamma N \rightarrow \pi N$ |
| 0.154             | PENNER                | 02D | DPWA | Multichannel                 |

<sup>1</sup> Statistical error only.

## $\Delta(1700)$ REFERENCES

For early references, see Physics Letters **111B** 1 (1982).

|            |     |                        |                                      |                          |
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