NODE=B015

# $N(1720)\ 3/2^+$

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

NODE=B015

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

## N(1720) POLE POSITION

NODE=B015215

### REAL PART

NODE=B015RE
NODE=B015RE

| VALUE (MeV) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| **1660 to 1710 (≈ 1680) OUR ESTIMATE** | | | | |
| 1710±20 | SARANTSEV | 25 | DPWA | Multichannel |
| 1726± 4 | ROENCHEN | 22 | DPWA | Multichannel |
| 1677± 4±1 | [1] SVARC | 14 | L+P | $\pi N \to \pi N$ |
| 1680±30 | CUTKOSKY | 80 | IPWA | $\pi N \to \pi N$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 1654 | HUNT | 19 | DPWA | Multichannel |
| 1710 | ROENCHEN | 15A | DPWA | Multichannel |
| 1670±25 | SOKHOYAN | 15A | DPWA | Multichannel |
| 1670 | SHKLYAR | 13 | DPWA | Multichannel |
| 1691±23 | BATINIC | 10 | DPWA | $\pi N \to N\pi, N\eta$ |
| 1666 | ARNDT | 06 | DPWA | $\pi N \to \pi N, \eta N$ |
| 1692 | VRANA | 00 | DPWA | Multichannel |
| 1686 | HOEHLER | 93 | SPED | $\pi N \to \pi N$ |

→ UNCHECKED ←

[1] Fit to the amplitudes of HOEHLER 79.

NODE=B015RE;LINKAGE=SV

### −2×IMAGINARY PART

NODE=B015IM
NODE=B015IM

| VALUE (MeV) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| **150 to 300 (≈ 200) OUR ESTIMATE** | | | | |
| 180± 30 | SARANTSEV | 25 | DPWA | Multichannel |
| 185± 6 | ROENCHEN | 22 | DPWA | Multichannel |
| 184± 8±1 | [1] SVARC | 14 | L+P | $\pi N \to \pi N$ |
| 120± 40 | CUTKOSKY | 80 | IPWA | $\pi N \to \pi N$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 100 | HUNT | 19 | DPWA | Multichannel |
| 219 | ROENCHEN | 15A | DPWA | Multichannel |
| 430±100 | SOKHOYAN | 15A | DPWA | Multichannel |
| 118 | SHKLYAR | 13 | DPWA | Multichannel |
| 233± 23 | BATINIC | 10 | DPWA | $\pi N \to N\pi, N\eta$ |
| 355 | ARNDT | 06 | DPWA | $\pi N \to \pi N, \eta N$ |
| 94 | VRANA | 00 | DPWA | Multichannel |
| 187 | HOEHLER | 93 | SPED | $\pi N \to \pi N$ |

→ UNCHECKED ←

[1] Fit to the amplitudes of HOEHLER 79.

NODE=B015IM;LINKAGE=SV

## N(1720) ELASTIC POLE RESIDUE

NODE=B015220

### MODULUS |r|

NODE=B015RER
NODE=B015RER

| VALUE (MeV) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| **10 to 25 (≈ 15) OUR ESTIMATE** | | | | |
| 15 ± 1 | ROENCHEN | 22 | DPWA | Multichannel |
| 26 ±10 | SOKHOYAN | 15A | DPWA | Multichannel |
| 13 ± 1 | [1] SVARC | 14 | L+P | $\pi N \to \pi N$ |
| 8 ± 2 | CUTKOSKY | 80 | IPWA | $\pi N \to \pi N$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 4.2 | ROENCHEN | 15A | DPWA | Multichannel |
| 12 | SHKLYAR | 13 | DPWA | Multichannel |
| 22 ± 8 | ANISOVICH | 12A | DPWA | Multichannel |
| 20 | BATINIC | 10 | DPWA | $\pi N \to N\pi, N\eta$ |
| 25 | ARNDT | 06 | DPWA | $\pi N \to \pi N, \eta N$ |
| 15 | HOEHLER | 93 | SPED | $\pi N \to \pi N$ |

→ UNCHECKED ←

[1] Fit to the amplitudes of HOEHLER 79.

NODE=B015RER;LINKAGE=SV

### PHASE $\theta$

NODE=B015IMR
NODE=B015IMR

| VALUE (°) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| **−160 to −60 (≈ − 110) OUR ESTIMATE** | | | | |
| − 60± 3 | ROENCHEN | 22 | DPWA | Multichannel |
| −100±25 | SOKHOYAN | 15A | DPWA | Multichannel |
| −115± 3±2 | [1] SVARC | 14 | L+P | $\pi N \rightarrow \pi N$ |
| −160±30 | CUTKOSKY | 80 | IPWA | $\pi N \rightarrow \pi N$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| − 47 | ROENCHEN | 15A | DPWA | Multichannel |
| − 45 | SHKLYAR | 13 | DPWA | Multichannel |
| −115±30 | ANISOVICH | 12A | DPWA | Multichannel |
| −109 | BATINIC | 10 | DPWA | $\pi N \rightarrow N\pi$, $N\eta$ |
| − 94 | ARNDT | 06 | DPWA | $\pi N \rightarrow \pi N$, $\eta N$ |

→ UNCHECKED ←

[1] Fit to the amplitudes of HOEHLER 79.

NODE=B015IMR;LINKAGE=SV

## $N(1720)$ INELASTIC POLE RESIDUE

NODE=B015250

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

NODE=B015250

### Normalized residue in $N\pi \rightarrow N(1720) \rightarrow N\eta$

NODE=B015RS1
NODE=B015RS1

| MODULUS | PHASE (°) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| 0.049±0.005 | 64 ± 5 | ROENCHEN | 22 | DPWA | Multichannel |
| 0.03 ±0.02 | | ANISOVICH | 12A | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| 0.007 | 106 | ROENCHEN | 15A | DPWA | Multichannel |

### Normalized residue in $N\pi \rightarrow N(1720) \rightarrow \Lambda K$

NODE=B015RS2
NODE=B015RS2

| MODULUS | PHASE (°) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| 0.034±0.002 | −101 ± 4 | ROENCHEN | 22 | DPWA | Multichannel |
| 0.06 ±0.04 | −150 ± 45 | ANISOVICH | 12A | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| 0.011 | −70 | ROENCHEN | 15A | DPWA | Multichannel |

### Normalized residue in $N\pi \rightarrow N(1720) \rightarrow \Sigma K$

NODE=B015A00
NODE=B015A00

| MODULUS | PHASE (°) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **0.059±0.005** | **82 ± 3** | ROENCHEN | 22 | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| 0.002 | 79 | ROENCHEN | 15A | DPWA | Multichannel |

### Normalized residue in $N\pi \rightarrow N(1720) \rightarrow \Delta\pi$, $P$-wave

NODE=B015RS3
NODE=B015RS3

| MODULUS | PHASE (°) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| 0.28±0.09 | 95 ± 30 | SOKHOYAN | 15A | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| 0.29±0.08 | 80 ± 40 | ANISOVICH | 12A | DPWA | Multichannel |

### Normalized residue in $N\pi \rightarrow N(1720) \rightarrow \Delta\pi$, $F$-wave

NODE=B015RS4
NODE=B015RS4

| MODULUS | PHASE (°) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| 0.07±0.05 | | SOKHOYAN | 15A | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| 0.03±0.03 | | ANISOVICH | 12A | DPWA | Multichannel |

### Normalized residue in $N\pi \rightarrow N(1720) \rightarrow N\sigma$

NODE=B015RS5
NODE=B015RS5

| MODULUS | PHASE (°) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| 0.08±0.04 | −110 ± 35 | SOKHOYAN | 15A | DPWA | Multichannel |

### Normalized residue in $N\pi \rightarrow N(1720) \rightarrow N(1520)\pi$, $S$-wave

NODE=B015RS6
NODE=B015RS6

| MODULUS | PHASE (°) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| 0.05±0.04 | undefined | SOKHOYAN | 15A | DPWA | Multichannel |

## $N(1720)$ BREIT-WIGNER MASS

NODE=B015M

NODE=B015M

| VALUE (MeV) | | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **1680 to 1750 (≈ 1720) OUR ESTIMATE** | | | | | |
| 1716 ± 18 | | SARANTSEV | 25 | DPWA | Multichannel |
| 1745 ± 6 | | GOLOVATCH | 19 | DPWA | $\gamma p \to \pi^+ \pi^- p$ |
| 1711 ± 4 | [1] | HUNT | 19 | DPWA | Multichannel |
| 1700 ± 10 | [1] | SHKLYAR | 13 | DPWA | Multichannel |
| 1763.8 ± 4.6 | | ARNDT | 06 | DPWA | $\pi N \to \pi N, \eta N$ |
| 1700 ± 50 | | CUTKOSKY | 80 | IPWA | $\pi N \to \pi N$ |
| 1710 ± 20 | | HOEHLER | 79 | IPWA | $\pi N \to \pi N$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| 1748 ± 5 | [2] | MOKEEV | 20 | DPWA | $\gamma p \to \pi^+ \pi^- p$ |
| 1725 ± 10 | [3] | MOKEEV | 20 | DPWA | $\gamma p \to \pi^+ \pi^- p$ |
| 1690 ± 30 | | SOKHOYAN | 15A | DPWA | Multichannel |
| 1720 ± 5 | [1] | SHRESTHA | 12A | DPWA | Multichannel |
| 1720 ± 18 | | BATINIC | 10 | DPWA | $\pi N \to N\pi, N\eta$ |
| 1705 ± 10 | | PENNER | 02C | DPWA | Multichannel |
| 1716 ± 112 | | VRANA | 00 | DPWA | Multichannel |

→ UNCHECKED ←

OCCUR=2

[1] Statistical error only.
[2] State a) of two states seen by the CLAS collaboration.
[3] State b) of two states seen by the CLAS collaboration.

NODE=B015M;LINKAGE=A
NODE=B015M;LINKAGE=C
NODE=B015M;LINKAGE=D

## *N*(1720) BREIT-WIGNER WIDTH

NODE=B015W

NODE=B015W

| VALUE (MeV) | | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **150 to 400 (≈ 250) OUR ESTIMATE** | | | | | |
| 180 ± 25 | | SARANTSEV | 25 | DPWA | Multichannel |
| 116 ± 27 | | GOLOVATCH | 19 | DPWA | $\gamma p \to \pi^+ \pi^- p$ |
| 229 ± 22 | [1] | HUNT | 19 | DPWA | Multichannel |
| 152 ± 2 | [1] | SHKLYAR | 13 | DPWA | Multichannel |
| 210 ± 22 | | ARNDT | 06 | DPWA | $\pi N \to \pi N, \eta N$ |
| 125 ± 70 | | CUTKOSKY | 80 | IPWA | $\pi N \to \pi N$ |
| 190 ± 30 | | HOEHLER | 79 | IPWA | $\pi N \to \pi N$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| 114 ± 6 | [2] | MOKEEV | 20 | DPWA | $\gamma p \to \pi^+ \pi^- p$ |
| 120 ± 6 | [3] | MOKEEV | 20 | DPWA | $\gamma p \to \pi^+ \pi^- p$ |
| 420 ± 80 | | SOKHOYAN | 15A | DPWA | Multichannel |
| 200 ± 20 | [1] | SHRESTHA | 12A | DPWA | Multichannel |
| 244 ± 28 | | BATINIC | 10 | DPWA | $\pi N \to N\pi, N\eta$ |
| 237 ± 73 | | PENNER | 02C | DPWA | Multichannel |
| 121 ± 39 | | VRANA | 00 | DPWA | Multichannel |

→ UNCHECKED ←

OCCUR=2

[1] Statistical error only.
[2] State a) of two states seen by the CLAS collaboration.
[3] State b) of two states seen by the CLAS collaboration.

NODE=B015W;LINKAGE=A
NODE=B015W;LINKAGE=C
NODE=B015W;LINKAGE=D

## *N*(1720) DECAY MODES

NODE=B015225;NODE=B015

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

NODE=B015

| | Mode | Fraction ($\Gamma_i/\Gamma$) | |
|---|---|---|---|
| $\Gamma_1$ | $N\pi$ | 8–14 % | DESIG=1;OUR EST |
| $\Gamma_2$ | $N\eta$ | 1–5 % | DESIG=2;OUR EST |
| $\Gamma_3$ | $N\omega$ | 12–40 % | DESIG=187;OUR EST |
| $\Gamma_4$ | $\Lambda K$ | 4–19 % | DESIG=3 |
| $\Gamma_5$ | $N\pi\pi$ | >50 % | DESIG=5 |
| $\Gamma_6$ | $\Delta(1232)\pi$ | 47–89 % | DESIG=181;OUR EST |
| $\Gamma_7$ | $\Delta(1232)\pi$, $P$-wave | 47–77 % | DESIG=6;OUR EST |
| $\Gamma_8$ | $\Delta(1232)\pi$, $F$-wave | <12 % | DESIG=14;OUR EST |
| $\Gamma_9$ | $N\rho$ | (29 ± 8 ) % | DESIG=182 |
| $\Gamma_{10}$ | $N\rho$, $S$=1/2 | 1–2 % | DESIG=7;OUR EST |
| $\Gamma_{11}$ | $N\rho$, $S$=3/2 , $P$-wave | (17 ± 6 ) % | DESIG=188 |

| | | | |
|---|---|---|---|
| $\Gamma_{12}$ | $N\sigma$ | 2–14 % | DESIG=9;OUR EST |
| $\Gamma_{13}$ | $N(1440)\pi$ | <2 % | DESIG=15;OUR EST |
| $\Gamma_{14}$ | $N(1520)\pi$, $S$-wave | 1–5 % | DESIG=16;OUR EST |
| $\Gamma_{15}$ | $N(1535)\pi$ | ( 4.0±2.0) % | DESIG=189 |
| $\Gamma_{16}$ | $p\gamma$ | 0.05–0.25 % | DESIG=184;OUR EST |
| $\Gamma_{17}$ | $p\gamma$, helicity=1/2 | 0.05–0.15 % | DESIG=10;OUR EST |
| $\Gamma_{18}$ | $p\gamma$, helicity=3/2 | 0.002–0.16 % | DESIG=11;OUR EST |
| $\Gamma_{19}$ | $n\gamma$ | 0.0–0.016 % | DESIG=185;OUR EST |
| $\Gamma_{20}$ | $n\gamma$, helicity=1/2 | 0.0–0.01 % | DESIG=12;OUR EST |
| $\Gamma_{21}$ | $n\gamma$, helicity=3/2 | 0.0–0.015 % | DESIG=13;OUR EST |

## N(1720) BRANCHING RATIOS

NODE=B015230

### $\Gamma(N\pi)/\Gamma_{total}$ $\Gamma_1/\Gamma$

NODE=B015R1
NODE=B015R1

| VALUE (%) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| **8 to 14 (≈ 11) OUR ESTIMATE** | | | | |
| 13 ±5 | SEIFEN | 25 | DPWA | Multichannel |
| 18 ±2 | [1] HUNT | 19 | DPWA | Multichannel |
| 17 ±2 | [1] SHKLYAR | 13 | DPWA | Multichannel |
| 9.4±0.5 | ARNDT | 06 | DPWA | $\pi N \to \pi N$, $\eta N$ |
| 10 ±4 | CUTKOSKY | 80 | IPWA | $\pi N \to \pi N$ |
| 14 ±3 | HOEHLER | 79 | IPWA | $\pi N \to \pi N$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 11 ±4 | SOKHOYAN | 15A | DPWA | Multichannel |
| 13.6±0.6 | [1] SHRESTHA | 12A | DPWA | Multichannel |
| 18 ±3 | BATINIC | 10 | DPWA | $\pi N \to N\pi$, $N\eta$ |
| 17 ±2 | PENNER | 02C | DPWA | Multichannel |
| 5 ±5 | VRANA | 00 | DPWA | Multichannel |

→ UNCHECKED ←

[1] Statistical error only.

NODE=B015R1;LINKAGE=A

### $\Gamma(N\eta)/\Gamma_{total}$ $\Gamma_2/\Gamma$

NODE=B015R11
NODE=B015R11

| VALUE (%) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| **1 to 5 (≈ 3) OUR ESTIMATE** | | | | |
| 3 ±2 | MUELLER | 20 | DPWA | Multichannel |
| 3.8±0.5 | [1] HUNT | 19 | DPWA | Multichannel |
| < 1 | SHKLYAR | 13 | DPWA | Multichannel |
| 3 ±2 | ANISOVICH | 12A | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| < 1 | [1] SHRESTHA | 12A | DPWA | Multichannel |
| 0 ±1 | BATINIC | 10 | DPWA | $\pi N \to N\pi$, $N\eta$ |
| 10 ±7 | THOMA | 08 | DPWA | Multichannel |
| 0.2±0.2 | PENNER | 02C | DPWA | Multichannel |
| 4 ±1 | VRANA | 00 | DPWA | Multichannel |

→ UNCHECKED ←

[1] Statistical error only.

NODE=B015R11;LINKAGE=A

### $\Gamma(N\omega)/\Gamma_{total}$ $\Gamma_3/\Gamma$

NODE=B015R00
NODE=B015R00

| VALUE (%) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| 26±14 | DENISENKO | 16 | DPWA | Multichannel |

### $\Gamma(\Lambda K)/\Gamma_{total}$ $\Gamma_4/\Gamma$

NODE=B015R13
NODE=B015R13

| VALUE (%) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| **4–19 % OUR ESTIMATE** | | | | |
| 16 ±3 | [1] HUNT | 19 | DPWA | Multichannel |
| 4.3±0.4 | SHKLYAR | 05 | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 2.8±0.4 | [1] SHRESTHA | 12A | DPWA | Multichannel |
| 12 ±9 | THOMA | 08 | DPWA | Multichannel |
| 9 ±3 | PENNER | 02C | DPWA | Multichannel |

→ UNCHECKED ←

[1] Statistical error only.

NODE=B015R13;LINKAGE=A

### $\Gamma(N\pi\pi)/\Gamma_{total}$ $\Gamma_5/\Gamma$

NODE=B015R01
NODE=B015R01

| VALUE (%) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| **>50 % OUR ESTIMATE** | | | | |
| 84±16 | GOLOVATCH | 19 | DPWA | $\gamma p \to \pi^+\pi^- p$ |

→ UNCHECKED ←

### $\Gamma(\Delta(1232)\pi)/\Gamma_{total}$ — $\Gamma_6/\Gamma$

NODE=B015R02
NODE=B015R02

| VALUE (%) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| **20±7** | SARANTSEV | 25 | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 45±8 | [1] MOKEEV | 20 | DPWA | $\gamma p \rightarrow \pi^+ \pi^- p$ |
| 54±8 | [2] MOKEEV | 20 | DPWA | $\gamma p \rightarrow \pi^+ \pi^- p$ |

OCCUR=2

[1] State a) of two states seen by the CLAS collaboration. NODE=B015R02;LINKAGE=A
[2] State b) of two states seen by the CLAS collaboration. NODE=B015R02;LINKAGE=B

### $\Gamma(\Delta(1232)\pi, P\text{-wave})/\Gamma_{total}$ — $\Gamma_7/\Gamma$

NODE=B015R14
NODE=B015R14

| VALUE (%) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| 9± 5 | SARANTSEV | 25 | DPWA | Multichannel |
| 15± 7 | SEIFEN | 25 | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 62±15 | SOKHOYAN | 15A | DPWA | Multichannel |

### $\Gamma(\Delta(1232)\pi, F\text{-wave})/\Gamma_{total}$ — $\Gamma_8/\Gamma$

NODE=B015R16
NODE=B015R16

| VALUE (%) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| 11±5 | SARANTSEV | 25 | DPWA | Multichannel |
| 6±6 | SEIFEN | 25 | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 6±6 | SOKHOYAN | 15A | DPWA | Multichannel |

### $\Gamma(N\rho)/\Gamma_{total}$ — $\Gamma_9/\Gamma$

NODE=B015R03
NODE=B015R03

| VALUE (%) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| **29±8** | SARANTSEV | 25 | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 38±8 | [1] MOKEEV | 20 | DPWA | $\gamma p \rightarrow \pi^+ \pi^- p$ |
| 7±3 | [2] MOKEEV | 20 | DPWA | $\gamma p \rightarrow \pi^+ \pi^- p$ |

OCCUR=2

[1] State a) of two states seen by the CLAS collaboration. NODE=B015R03;LINKAGE=A
[2] State b) of two states seen by the CLAS collaboration. NODE=B015R03;LINKAGE=B

### $\Gamma(N\rho, S=1/2)/\Gamma_{total}$ — $\Gamma_{10}/\Gamma$

NODE=B015R12
NODE=B015R12

| VALUE (%) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| 12 ±5 | SARANTSEV | 25 | DPWA | Multichannel |
| 1.4±0.5 | [1] SHRESTHA | 12A | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 91 ±1 | VRANA | 00 | DPWA | Multichannel |

[1] Statistical error only. NODE=B015R12;LINKAGE=A

### $\Gamma(N\rho, S=3/2, P\text{-wave})/\Gamma_{total}$ — $\Gamma_{11}/\Gamma$

NODE=B015R04
NODE=B015R04

| VALUE (%) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| **17±6** | SARANTSEV | 25 | DPWA | Multichannel |

### $\Gamma(N\sigma)/\Gamma_{total}$ — $\Gamma_{12}/\Gamma$

NODE=B015R15
NODE=B015R15

| VALUE (%) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| 25± 6 | SARANTSEV | 25 | DPWA | Multichannel |
| 20±10 | SEIFEN | 25 | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 8± 6 | SOKHOYAN | 15A | DPWA | Multichannel |

### $\Gamma(N(1440)\pi)/\Gamma_{total}$ — $\Gamma_{13}/\Gamma$

NODE=B015R17
NODE=B015R17

| VALUE (%) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| 6±5 | SEIFEN | 25 | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| <2 | SOKHOYAN | 15A | DPWA | Multichannel |

### $\Gamma(N(1520)\pi, S\text{-wave})/\Gamma_{total}$ — $\Gamma_{14}/\Gamma$

NODE=B015R18
NODE=B015R18

| VALUE (%) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| 7±3 | SEIFEN | 25 | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 3±2 | SOKHOYAN | 15A | DPWA | Multichannel |

### $\Gamma(N(1535)\pi)/\Gamma_{total}$ $\Gamma_{15}/\Gamma$

NODE=B015R05
NODE=B015R05

| VALUE (%) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| **4±2** | SEIFEN | 25 | DPWA | Multichannel |

## N(1720) PHOTON DECAY AMPLITUDES AT THE POLE

NODE=B015260

### $N(1720) \to p\gamma$, helicity-1/2 amplitude $A_{1/2}$

NODE=B015PA1
NODE=B015PA1

| MODULUS ($GeV^{-1/2}$) | PHASE (°) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| 0.100±0.025 | −5 ± 30 | SARANTSEV | 25 | DPWA | Multichannel |
| 0.039±0.004 | 60 ± 5 | ROENCHEN | 22 | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| 0.039 | 5.3 | ROENCHEN | 15A | DPWA | Multichannel |
| 0.115±0.045 | 0 ± 35 | SOKHOYAN | 15A | DPWA | Multichannel |

### $N(1720) \to p\gamma$, helicity-3/2 amplitude $A_{3/2}$

NODE=B015PA2
NODE=B015PA2

| MODULUS ($GeV^{-1/2}$) | PHASE (°) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| 0.045±0.020 | 120 ± 30 | SARANTSEV | 25 | DPWA | Multichannel |
| −0.025±0.004 | −5.7 ± 7 | ROENCHEN | 22 | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| 0.032 | 66 | ROENCHEN | 15A | DPWA | Multichannel |
| 0.140±0.040 | 65 ± 35 | SOKHOYAN | 15A | DPWA | Multichannel |

### $N(1720) \to n\gamma$, helicity-1/2 amplitude $A_{1/2}$

NODE=B015PA3
NODE=B015PA3

| MODULUS ($GeV^{-1/2}$) | PHASE (°) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| $-0.025^{+0.015}_{-0.040}$ | −75 ± 35 | ANISOVICH | 17E | DPWA | Multichannel |

### $N(1720) \to n\gamma$, helicity-3/2 amplitude $A_{3/2}$

NODE=B015PA4
NODE=B015PA4

| MODULUS ($GeV^{-1/2}$) | PHASE (°) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| 0.100±0.035 | −80 ± 35 | ANISOVICH | 17E | DPWA | Multichannel |

## N(1720) BREIT-WIGNER PHOTON DECAY AMPLITUDES

NODE=B015235

### $N(1720) \to p\gamma$, helicity-1/2 amplitude $A_{1/2}$

NODE=B015A1
NODE=B015A1

→ UNCHECKED ←

| VALUE ($GeV^{-1/2}$) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| **0.080 to 0.120 (≈ 0.100) OUR ESTIMATE** | | | | |
| 0.100 ±0.025 | SARANTSEV | 25 | DPWA | Multichannel |
| 0.0809±0.0115 | GOLOVATCH | 19 | DPWA | $\gamma p \to \pi^+\pi^- p$ |
| 0.068 ±0.004 | [1] HUNT | 19 | DPWA | Multichannel |
| −0.065 ±0.002 | [1] SHKLYAR | 13 | DPWA | Multichannel |
| 0.095 ±0.002 | WORKMAN | 12A | DPWA | $\gamma N \to N\pi$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 0.115 ±0.045 | SOKHOYAN | 15A | DPWA | Multichannel |
| 0.057 ±0.003 | [1] SHRESTHA | 12A | DPWA | Multichannel |
| 0.073 | DRECHSEL | 07 | DPWA | $\gamma N \to \pi N$ |
| 0.097 ±0.003 | DUGGER | 07 | DPWA | $\gamma N \to \pi N$ |
| −0.053 | PENNER | 02D | DPWA | Multichannel |

[1] Statistical error only.

NODE=B015A1;LINKAGE=A

### $N(1720) \to p\gamma$, helicity-3/2 amplitude $A_{3/2}$

NODE=B015A2
NODE=B015A2

| VALUE ($GeV^{-1/2}$) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| −0.041±0.020 | SARANTSEV | 25 | DPWA | Multichannel |
| −0.034±0.0076 | GOLOVATCH | 19 | DPWA | $\gamma p \to \pi^+\pi^- p$ |
| 0.028±0.003 | [1] HUNT | 19 | DPWA | Multichannel |
| 0.035±0.002 | [1] SHKLYAR | 13 | DPWA | Multichannel |
| −0.048±0.002 | WORKMAN | 12A | DPWA | $\gamma N \to N\pi$ |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| 0.135±0.040 | SOKHOYAN | 15A | DPWA | Multichannel |
| −0.019±0.002 | [1] SHRESTHA | 12A | DPWA | Multichannel |
| −0.011 | DRECHSEL | 07 | DPWA | $\gamma N \to \pi N$ |
| −0.039±0.003 | DUGGER | 07 | DPWA | $\gamma N \to \pi N$ |
| 0.027 | PENNER | 02D | DPWA | Multichannel |

[1] Statistical error only.

NODE=B015A2;LINKAGE=A

### $N(1720) \to n\gamma$, helicity-1/2 amplitude $A_{1/2}$

NODE=B015A3
NODE=B015A3

| VALUE (GeV$^{-1/2}$) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| $-0.064\pm0.006$ | [1] HUNT | 19 | DPWA | Multichannel |
| $-0.028^{+0.015}_{-0.040}$ | ANISOVICH | 17E | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| $-0.080\pm0.050$ | ANISOVICH | 13B | DPWA | Multichannel |
| $-0.002\pm0.001$ | [1] SHRESTHA | 12A | DPWA | Multichannel |
| $-0.003$ | DRECHSEL | 07 | DPWA | $\gamma N \to \pi N$ |
| $-0.004$ | PENNER | 02D | DPWA | Multichannel |

[1] Statistical error only.

NODE=B015A3;LINKAGE=A

### $N(1720) \to n\gamma$, helicity-3/2 amplitude $A_{3/2}$

NODE=B015A4
NODE=B015A4

| VALUE (GeV$^{-1/2}$) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| $-0.004\pm0.006$ | [1] HUNT | 19 | DPWA | Multichannel |
| $-0.140\pm0.065$ | ANISOVICH | 13B | DPWA | Multichannel |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| $-0.001\pm0.002$ | [1] SHRESTHA | 12A | DPWA | Multichannel |
| $-0.031$ | DRECHSEL | 07 | DPWA | $\gamma N \to \pi N$ |
| 0.003 | PENNER | 02D | DPWA | Multichannel |

[1] Statistical error only.

NODE=B015A4;LINKAGE=A

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