NODE=B144

$N(1900)\ 3/2^+$

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

N(1900) POLE POSITION

NODE=B144230

REAL PART

NODE=B144RE
NODE=B144RE

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
1900 to 1940 (≈ 1920) OUR ESTIMATE				→ UNCHECKED ←
1925±25	SARANTSEV	25	DPWA	Multichannel
1905± 2	ROENCHEN	22	DPWA	Multichannel
1928±18±2	[1] SVARC	14	L+P	$\pi N \to \pi N$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1856	HUNT	19	DPWA	Multichannel
1912±30	[2] ANISOVICH	17A	L+P	$\gamma p,\ \pi^- p \to K\Lambda$
1910±30	SOKHOYAN	15A	DPWA	Multichannel
1910±30	GUTZ	14	DPWA	Multichannel
1910	SHKLYAR	13	DPWA	Multichannel

OCCUR=2

[1] Fit to the amplitudes of HOEHLER 79.

NODE=B144RE;LINKAGE=SV

[2] Statistical error only.

NODE=B144RE;LINKAGE=A

−2×IMAGINARY PART

NODE=B144IM
NODE=B144IM

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
90 to 160 (≈ 130) OUR ESTIMATE				→ UNCHECKED ←
270±30	SARANTSEV	25	DPWA	Multichannel
93± 2	ROENCHEN	22	DPWA	Multichannel
152±40±9	[1] SVARC	14	L+P	$\pi N \to \pi N$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
241	HUNT	19	DPWA	Multichannel
166±30	[2] ANISOVICH	17A	L+P	$\gamma p,\ \pi^- p \to K\Lambda$
280±50	SOKHOYAN	15A	DPWA	Multichannel
280±50	GUTZ	14	DPWA	Multichannel
173	SHKLYAR	13	DPWA	Multichannel

OCCUR=2

[1] Fit to the amplitudes of HOEHLER 79.

NODE=B144IM;LINKAGE=SV

[2] Statistical error only.

NODE=B144IM;LINKAGE=A

N(1900) ELASTIC POLE RESIDUE

NODE=B144240

MODULUS $|r|$

NODE=B144RER
NODE=B144RER

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
2 to 6 (≈ 4) OUR ESTIMATE				→ UNCHECKED ←
1.6±0.2	ROENCHEN	22	DPWA	Multichannel
4 ±2	SOKHOYAN	15A	DPWA	Multichannel
4 ±1 ±1	[1] SVARC	14	L+P	$\pi N \to \pi N$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4 ±2	GUTZ	14	DPWA	Multichannel
10	SHKLYAR	13	DPWA	Multichannel
3 ±2	ANISOVICH	12A	DPWA	Multichannel

[1] Fit to the amplitudes of HOEHLER 79.

NODE=B144RER;LINKAGE=SV

PHASE θ

NODE=B144IMR
NODE=B144IMR

VALUE (°)	DOCUMENT ID		TECN	COMMENT
−40 to 20 (≈ − 10) OUR ESTIMATE				→ UNCHECKED ←
44±11	ROENCHEN	22	DPWA	Multichannel
−10±40	SOKHOYAN	15A	DPWA	Multichannel
−29±15±2	[1] SVARC	14	L+P	$\pi N \to \pi N$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
−10±40	GUTZ	14	DPWA	Multichannel
−64	SHKLYAR	13	DPWA	Multichannel
10±35	ANISOVICH	12A	DPWA	Multichannel

[1] Fit to the amplitudes of HOEHLER 79.

NODE=B144IMR;LINKAGE=SV

$N(1900)$ INELASTIC POLE RESIDUE

NODE=B144250

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

NODE=B144250

Normalized residue in $N\pi \to N(1900) \to N\eta$

NODE=B144RS1
NODE=B144RS1

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.010±0.002	55 ± 15	ROENCHEN	22	DPWA	Multichannel
0.05 ±0.02	70 ± 60	ANISOVICH	12A	DPWA	Multichannel

Normalized residue in $N\pi \to N(1900) \to \Lambda K$

NODE=B144RS2
NODE=B144RS2

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.029±0.003	5.4 ± 9.3	ROENCHEN	22	DPWA	Multichannel
0.03 ±0.02	90 ± 40	ANISOVICH	17A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.07 ±0.03	135 ± 25	ANISOVICH	12A	DPWA	Multichannel

Normalized residue in $N\pi \to N(1900) \to \Sigma K$

NODE=B144RS3
NODE=B144RS3

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.013±0.002	−40 ± 9	ROENCHEN	22	DPWA	Multichannel
0.04 ±0.02	110 ± 30	ANISOVICH	12A	DPWA	Multichannel

Normalized residue in $N\pi \to N(1900) \to N(1535)\pi$

NODE=B144RS4
NODE=B144RS4

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.04±0.01	170 ± 30	GUTZ	14	DPWA	Multichannel

Normalized residue in $N\pi \to N(1900) \to \Delta(1232)\pi$, P-wave

NODE=B144RS5
NODE=B144RS5

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.07±0.04	−65 ± 30	SOKHOYAN	15A	DPWA	Multichannel

Normalized residue in $N\pi \to N(1900) \to \Delta(1232)\pi$, F-wave

NODE=B144RS6
NODE=B144RS6

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.10±0.05	80 ± 30	SOKHOYAN	15A	DPWA	Multichannel

Normalized residue in $N\pi \to N(1900) \to N(1520)\pi$

NODE=B144RS7
NODE=B144RS7

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.07±0.04	−105 ± 35	SOKHOYAN	15A	DPWA	Multichannel

Normalized residue in $N\pi \to N(1900) \to N\sigma$

NODE=B144RS8
NODE=B144RS8

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.03±0.02	−110 ± 35	SOKHOYAN	15A	DPWA	Multichannel

$N(1900)$ BREIT-WIGNER MASS

NODE=B144M

NODE=B144M

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
1890 to 1950 (≈ 1920) OUR ESTIMATE				
1930±15	SARANTSEV	25	DPWA	Multichannel
1911± 6	[1] HUNT	19	DPWA	Multichannel
1998± 3	[1] SHKLYAR	13	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1910±30	SOKHOYAN	15A	DPWA	Multichannel
1910±30	GUTZ	14	DPWA	Multichannel
1900± 8	[1] SHRESTHA	12A	DPWA	Multichannel
1951±53	PENNER	02C	DPWA	Multichannel

[1] Statistical error only.

→ UNCHECKED ←

NODE=B144M;LINKAGE=A

$N(1900)$ BREIT-WIGNER WIDTH

NODE=B144W

NODE=B144W

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
100 to 320 (≈ 200) OUR ESTIMATE				
270±20	SARANTSEV	25	DPWA	Multichannel
292±16	[1] HUNT	19	DPWA	Multichannel
359±10	[1] SHKLYAR	13	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
270±50	SOKHOYAN	15A	DPWA	Multichannel
270±50	GUTZ	14	DPWA	Multichannel
101±15	[1] SHRESTHA	12A	DPWA	Multichannel
622±42	PENNER	02C	DPWA	Multichannel

[1] Statistical error only.

→ UNCHECKED ←

NODE=B144W;LINKAGE=A

$N(1900)$ DECAY MODES

NODE=B144215;NODE=B144

	Mode	Fraction (Γ_i/Γ)	
Γ_1	$N\pi$	1–20 %	DESIG=1
Γ_2	$N\eta$	2–14 %	DESIG=4;OUR EST
Γ_3	$N\eta'$	4–8 %	DESIG=20
Γ_4	$N\omega$	7–13 %	DESIG=5;OUR EST
Γ_5	ΛK	2–20 %	DESIG=6;OUR EST
Γ_6	ΣK	3–7 %	DESIG=7;OUR EST
Γ_7	$N\pi\pi$	>56 %	DESIG=2;OUR EST
Γ_8	$\Delta(1232)\pi$	30–70 %	DESIG=3;OUR EST
Γ_9	$\Delta(1232)\pi$, P-wave	9–25 %	DESIG=18;OUR EST
Γ_{10}	$\Delta(1232)\pi$, F-wave	21–45 %	DESIG=17;OUR EST
Γ_{11}	$N\rho$	(46 ±13) %	DESIG=26
Γ_{12}	$N\rho$, S=1/2	25–40 %	DESIG=22
Γ_{13}	$N\rho$, S=3/2 , P-wave	(9.0± 3.0) %	DESIG=23
Γ_{14}	$N\rho$, S=3/2 , F-wave	(30 ±12) %	DESIG=24
Γ_{15}	$N\sigma$	1–7 %	DESIG=16;OUR EST
Γ_{16}	$N(1440)\pi$	(9 ± 6) %	DESIG=25
Γ_{17}	$N(1520)\pi$, S-wave	7–23 %	DESIG=15;OUR EST
Γ_{18}	$N(1535)\pi$	4–10 %	DESIG=14;OUR EST
Γ_{19}	$\Lambda K^*(892)$	< 0.2 %	DESIG=19
Γ_{20}	$p\gamma$	0.001–0.025 %	DESIG=8;OUR EST
Γ_{21}	$p\gamma$, helicity=1/2	0.001–0.021 %	DESIG=9;OUR EST
Γ_{22}	$p\gamma$, helicity=3/2	<0.003 %	DESIG=10;OUR EST
Γ_{23}	$n\gamma$	<0.040 %	DESIG=11;OUR EST
Γ_{24}	$n\gamma$, helicity=1/2	<0.007 %	DESIG=12;OUR EST
Γ_{25}	$n\gamma$, helicity=3/2	<0.033 %	DESIG=13;OUR EST

$N(1900)$ BRANCHING RATIOS

NODE=B144220

$\Gamma(N\pi)/\Gamma_{\text{total}}$ Γ_1/Γ

NODE=B144R1
NODE=B144R1

VALUE (%)	DOCUMENT ID		TECN	COMMENT
1–20 % OUR ESTIMATE				→ UNCHECKED ←
4 ±3	SEIFEN	25	DPWA	Multichannel
1.9±0.1	[1] HUNT	19	DPWA	Multichannel
25 ±1	[1] SHKLYAR	13	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
3 ±2	SOKHOYAN	15A	DPWA	Multichannel
3 ±2	GUTZ	14	DPWA	Multichannel
7 ±4	[1] SHRESTHA	12A	DPWA	Multichannel
16 ±2	PENNER	02C	DPWA	Multichannel

[1] Statistical error only.

NODE=B144R1;LINKAGE=A

$\Gamma(N\eta)/\Gamma_{\text{total}}$ Γ_2/Γ

NODE=B144R4
NODE=B144R4

VALUE (%)	DOCUMENT ID		TECN	COMMENT
2 ±2	MUELLER	20	DPWA	Multichannel
1.3±0.5	[1] HUNT	19	DPWA	Multichannel
2 ±2	[1] SHKLYAR	13	DPWA	Multichannel
10 ±4	ANISOVICH	12A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
< 1	[1] SHRESTHA	12A	DPWA	Multichannel
14 ±5	PENNER	02C	DPWA	Multichannel

[1] Statistical error only.

NODE=B144R4;LINKAGE=A

$\Gamma(N\eta')/\Gamma_{\text{total}}$ Γ_3/Γ

NODE=B144R06
NODE=B144R06

VALUE (%)	DOCUMENT ID		TECN	COMMENT
4–8 % OUR ESTIMATE				→ UNCHECKED ←
6±2	ANISOVICH	17C	DPWA	Multichannel

$\Gamma(N\omega)/\Gamma_{total}$ Γ_4/Γ

NODE=B144R5
NODE=B144R5

VALUE (%)	DOCUMENT ID		TECN	COMMENT
15±8	DENISENKO	16	DPWA	Multichannel
10±3	[1] SHKLYAR	13	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
39±9	PENNER	02C	DPWA	Multichannel

[1] Statistical error only.

NODE=B144R5;LINKAGE=A

$\Gamma(\Lambda K)/\Gamma_{total}$ Γ_5/Γ

NODE=B144R6
NODE=B144R6

VALUE (%)	DOCUMENT ID		TECN	COMMENT
13.7±0.3	[1] HUNT	19	DPWA	Multichannel
16 ±5	ANISOVICH	12A	DPWA	Multichannel
2.4±0.3	[1] SHKLYAR	05	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
14 ±5	[1] SHRESTHA	12A	DPWA	Multichannel
5 to 15	NIKONOV	08	DPWA	Multichannel
0.1±0.1	PENNER	02C	DPWA	Multichannel

[1] Statistical error only.

NODE=B144R6;LINKAGE=A

$\Gamma(\Sigma K)/\Gamma_{total}$ Γ_6/Γ

NODE=B144R7
NODE=B144R7

VALUE (%)	DOCUMENT ID		TECN	COMMENT
5±2	ANISOVICH	12A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1±1	PENNER	02C	DPWA	Multichannel

$\Gamma(\Delta(1232)\pi)/\Gamma_{total}$ Γ_8/Γ

NODE=B144R11
NODE=B144R11

VALUE (%)	DOCUMENT ID		TECN	COMMENT
13±5	SARANTSEV	25	DPWA	Multichannel

$\Gamma(\Delta(1232)\pi, P\text{-wave})/\Gamma_{total}$ Γ_9/Γ

NODE=B144R04
NODE=B144R04

VALUE (%)	DOCUMENT ID		TECN	COMMENT
8±4	SARANTSEV	25	DPWA	Multichannel
9±6	SEIFEN	25	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
17±8	SOKHOYAN	15A	DPWA	Multichannel

$\Gamma(\Delta(1232)\pi, F\text{-wave})/\Gamma_{total}$ Γ_{10}/Γ

NODE=B144R05
NODE=B144R05

VALUE (%)	DOCUMENT ID		TECN	COMMENT
5± 3	SARANTSEV	25	DPWA	Multichannel
4± 3	SEIFEN	25	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
33±12	SOKHOYAN	15A	DPWA	Multichannel

$\Gamma(N\rho)/\Gamma_{total}$ Γ_{11}/Γ

NODE=B144R12
NODE=B144R12

VALUE (%)	DOCUMENT ID		TECN	COMMENT
46±13	SARANTSEV	25	DPWA	Multichannel

$\Gamma(N\rho, S{=}1/2)/\Gamma_{total}$ Γ_{12}/Γ

NODE=B144R07
NODE=B144R07

VALUE (%)	DOCUMENT ID		TECN	COMMENT
25–40 % OUR ESTIMATE				→ UNCHECKED ←
7±4	SARANTSEV	25	DPWA	Multichannel
32±7	[1] HUNT	19	DPWA	Multichannel

[1] Statistical error only.

NODE=B144R07;LINKAGE=A

$\Gamma(N\rho, S{=}3/2, P\text{-wave})/\Gamma_{total}$ Γ_{13}/Γ

NODE=B144R08
NODE=B144R08

VALUE (%)	DOCUMENT ID		TECN	COMMENT
9±3	SARANTSEV	25	DPWA	Multichannel

$\Gamma(N\rho, S{=}3/2, F\text{-wave})/\Gamma_{total}$ Γ_{14}/Γ

NODE=B144R09
NODE=B144R09

VALUE (%)	DOCUMENT ID		TECN	COMMENT
30±12	SARANTSEV	25	DPWA	Multichannel

$\Gamma(N\sigma)/\Gamma_{total}$ Γ_{15}/Γ

NODE=B144R02
NODE=B144R02

VALUE (%)	DOCUMENT ID		TECN	COMMENT
10±3	SARANTSEV	25	DPWA	Multichannel
9±4	SEIFEN	25	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4±3	SOKHOYAN	15A	DPWA	Multichannel

$\Gamma(N(1440)\pi)/\Gamma_{total}$ Γ_{16}/Γ

NODE=B144R10
NODE=B144R10

VALUE (%)	DOCUMENT ID		TECN	COMMENT
9±6	SEIFEN	25	DPWA	Multichannel

$\Gamma(N(1520)\pi, S\text{-wave})/\Gamma_{total}$ Γ_{17}/Γ

NODE=B144R03
NODE=B144R03

VALUE (%)	DOCUMENT ID		TECN	COMMENT
< 2	SEIFEN	25	DPWA	Multichannel
15±8	SOKHOYAN	15A	DPWA	Multichannel

$\Gamma(N(1535)\pi)/\Gamma_{total}$ Γ_{18}/Γ

NODE=B144R01
NODE=B144R01

VALUE (%)	DOCUMENT ID		TECN	COMMENT
15±6	SEIFEN	25	DPWA	Multichannel
7±3	GUTZ	14	DPWA	Multichannel

$\Gamma(\Lambda K^*(892))/\Gamma_{total}$ Γ_{19}/Γ

NODE=B144R00
NODE=B144R00

VALUE (%)	DOCUMENT ID		TECN	COMMENT
< 0.2 % OUR ESTIMATE				→ UNCHECKED ←
<0.2	ANISOVICH	17B	DPWA	Multichannel

$N(1900)$ PHOTON DECAY AMPLITUDES AT THE POLE

NODE=B144260

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

NODE=B144PA1
NODE=B144PA1

MODULUS ($GeV^{-1/2}$)	PHASE (°)	DOCUMENT ID		TECN	COMMENT
−0.050 ±0.012	40 ± 40	SARANTSEV	25	DPWA	Multichannel
0.0091±0.0014	80 ± 12	ROENCHEN	22	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.026 ±0.014	60 ± 35	SOKHOYAN	15A	DPWA	Multichannel

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

NODE=B144PA2
NODE=B144PA2

MODULUS ($GeV^{-1/2}$)	PHASE (°)	DOCUMENT ID		TECN	COMMENT
−0.044 ±0.012	35 ± 20	SARANTSEV	25	DPWA	Multichannel
−0.0077±0.0017	−42 ± 12	ROENCHEN	22	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •					
−0.070 ±0.030	70 ± 50	SOKHOYAN	15A	DPWA	Multichannel

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

NODE=B144PA3
NODE=B144PA3

MODULUS ($GeV^{-1/2}$)	PHASE (°)	DOCUMENT ID		TECN	COMMENT
−0.098±0.020	−13 ± 20	ANISOVICH	17E	DPWA	Multichannel

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

NODE=B144PA4
NODE=B144PA4

MODULUS ($GeV^{-1/2}$)	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.074±0.015	5 ± 15	ANISOVICH	17E	DPWA	Multichannel

$N(1900)$ BREIT-WIGNER PHOTON DECAY AMPLITUDES

NODE=B144225

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

NODE=B144A1
NODE=B144A1

VALUE ($GeV^{-1/2}$)	DOCUMENT ID		TECN	COMMENT
−0.050±0.012	SARANTSEV	25	DPWA	Multichannel
0.040±0.004	[1] HUNT	19	DPWA	Multichannel
−0.008±0.001	[1] SHKLYAR	13	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.024±0.014	SOKHOYAN	15A	DPWA	Multichannel
0.024±0.014	GUTZ	14	DPWA	Multichannel
0.041±0.008	[1] SHRESTHA	12A	DPWA	Multichannel
−0.017	PENNER	02D	DPWA	Multichannel

[1] Statistical error only.

NODE=B144A1;LINKAGE=A

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

NODE=B144A2
NODE=B144A2

VALUE ($GeV^{-1/2}$)	DOCUMENT ID		TECN	COMMENT
-0.044 ± 0.014	SARANTSEV	25	DPWA	Multichannel
-0.094 ± 0.007	[1] HUNT	19	DPWA	Multichannel
< 0.001	SHKLYAR	13	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
-0.067 ± 0.030	SOKHOYAN	15A	DPWA	Multichannel
-0.067 ± 0.030	GUTZ	14	DPWA	Multichannel
-0.004 ± 0.006	[1] SHRESTHA	12A	DPWA	Multichannel
0.031	PENNER	02D	DPWA	Multichannel

[1] Statistical error only.

NODE=B144A2;LINKAGE=A

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

NODE=B144A3
NODE=B144A3

VALUE ($GeV^{-1/2}$)	DOCUMENT ID		TECN	COMMENT
0.007 ± 0.014	[1] HUNT	19	DPWA	Multichannel
-0.102 ± 0.020	ANISOVICH	17E	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.000 ± 0.030	ANISOVICH	13B	DPWA	Multichannel
-0.010 ± 0.004	[1] SHRESTHA	12A	DPWA	Multichannel
-0.016	PENNER	02D	DPWA	Multichannel

[1] Statistical error only.

NODE=B144A3;LINKAGE=A

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

NODE=B144A4
NODE=B144A4

VALUE ($GeV^{-1/2}$)	DOCUMENT ID		TECN	COMMENT
0.007 ± 0.011	[1] HUNT	19	DPWA	Multichannel
0.073 ± 0.015	ANISOVICH	17E	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
-0.060 ± 0.045	ANISOVICH	13B	DPWA	Multichannel
-0.011 ± 0.007	[1] SHRESTHA	12A	DPWA	Multichannel
-0.002	PENNER	02D	DPWA	Multichannel

[1] Statistical error only.

NODE=B144A4;LINKAGE=A

N(1900) REFERENCES

NODE=B144

SARANTSEV	25	PR C112 015202	A.V. Sarantsev *et al.*	(Bonn-Gatchina Collab.)
SEIFEN	25	EPJ A61 173	T. Seifen *et al.*	(CBELSA/TAPS Collab.)
ROENCHEN	22	EPJ A58 229	D. Roenchen *et al.*	(JULI, GWU, BONN+)
MUELLER	20	PL B803 135323	J. Mueller *et al.*	(CBELSA/TAPS Collab.)
HUNT	19	PR C99 055205	B.C. Hunt, D.M. Manley	
ANISOVICH	17A	PRL 119 062004	A.V. Anisovich *et al.*	
ANISOVICH	17B	PL B771 142	A.V. Anisovich *et al.*	
ANISOVICH	17C	PL B772 247	A.V. Anisovich *et al.*	
ANISOVICH	17E	PR C96 055202	A.V. Anisovich *et al.*	(BONN, PNPI, JLAB+)
DENISENKO	16	PL B755 97	I. Denisenko *et al.*	
SOKHOYAN	15A	EPJ A51 95	V. Sokhoyan *et al.*	(CBELSA/TAPS Collab.)
GUTZ	14	EPJ A50 74	E. Gutz *et al.*	(CBELSA/TAPS Collab.)
SVARC	14	PR C89 045205	A. Svarc *et al.*	(RBI Zagreb, UNI Tuzla)
ANISOVICH	13B	EPJ A49 67	A.V. Anisovich *et al.*	
SHKLYAR	13	PR C87 015201	V. Shklyar, H. Lenske, U. Mosel	(GIES)
ANISOVICH	12A	EPJ A48 15	A.V. Anisovich *et al.*	(BONN, PNPI)
SHRESTHA	12A	PR C86 055203	M. Shrestha, D.M. Manley	(KSU)
NIKONOV	08	PL B662 245	V.A. Nikonov *et al.*	(Bonn, Gatchina)
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)
HOEHLER	79	PDAT 12-1	G. Hohler *et al.*	(KARLT)

REFID=63294
REFID=63593
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