$N(2100)\ 1/2^+$

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

OMITTED FROM SUMMARY TABLE

$N(2100)$ POLE POSITION

REAL PART

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
2120 ± 25	SOKHOYAN	15A	DPWA	Multichannel
$2052\pm\ 6\pm3$	[1] SVARC	14	L+P	$\pi N \to \pi N$
2120 ± 40	CUTKOSKY	80	IPWA	$\pi N \to \pi N$

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

| 2120 ± 47 | BATINIC | 10 | DPWA | $\pi N \to N\pi, N\eta$ |
| 1810 | VRANA | 00 | DPWA | Multichannel |

$-2\times$IMAGINARY PART

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
290 ± 30	SOKHOYAN	15A	DPWA	Multichannel
$337\pm10\pm4$	[1] SVARC	14	L+P	$\pi N \to \pi N$
240 ± 80	CUTKOSKY	80	IPWA	$\pi N \to \pi N$

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

| 346 ± 80 | BATINIC | 10 | DPWA | $\pi N \to N\pi, N\eta$ |
| 622 | VRANA | 00 | DPWA | Multichannel |

$N(2100)$ ELASTIC POLE RESIDUE

MODULUS $|r|$

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
23 ± 5	SOKHOYAN	15A	DPWA	Multichannel
$30\pm1\pm1$	[1] SVARC	14	L+P	$\pi N \to \pi N$
14 ± 7	CUTKOSKY	80	IPWA	$\pi N \to \pi N$

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

| 33 | BATINIC | 10 | DPWA | $\pi N \to N\pi, N\eta$ |

PHASE θ

VALUE (°)	DOCUMENT ID		TECN	COMMENT
-70 ± 25	SOKHOYAN	15A	DPWA	Multichannel
$-92\pm\ 3\pm2$	[1] SVARC	14	L+P	$\pi N \to \pi N$
35 ± 25	CUTKOSKY	80	IPWA	$\pi N \to \pi N$

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

| -59 | BATINIC | 10 | DPWA | $\pi N \to N\pi, N\eta$ |

$N(2100)$ INELASTIC POLE RESIDUE

Normalized residue in $N\pi \to N(2100) \to \Delta(1232)\pi$

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.11 ± 0.05	20 ± 60	SOKHOYAN	15A	DPWA	Multichannel

Normalized residue in $N\pi \to N(2100) \to N\sigma$

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.18±0.06	125 ± 25	SOKHOYAN	15A	DPWA	Multichannel

Normalized residue in $N\pi \to N(2100) \to N(1535)\pi$

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.22±0.06	−40 ± 25	SOKHOYAN	15A	DPWA	Multichannel

N(2100) BREIT-WIGNER MASS

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
≈ 2100 OUR ESTIMATE				
2115±20	SOKHOYAN	15A	DPWA	Multichannel
2125±75	CUTKOSKY	80	IPWA	$\pi N \to \pi N$
2050±20	HOEHLER	79	IPWA	$\pi N \to \pi N$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
2157±42	BATINIC	10	DPWA	$\pi N \to N\pi, N\eta$
$2068\pm\ 3^{+15}_{-40}$	ABLIKIM	06K	BES2	$J/\psi \to (p\pi^-)\overline{n}$
2084±93	VRANA	00	DPWA	Multichannel

N(2100) BREIT-WIGNER WIDTH

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
290± 20	SOKHOYAN	15A	DPWA	Multichannel
260±100	CUTKOSKY	80	IPWA	$\pi N \to \pi N$
200± 30	HOEHLER	79	IPWA	$\pi N \to \pi N$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
355± 88	BATINIC	10	DPWA	$\pi N \to N\pi, N\eta$
165± 14±40	ABLIKIM	06K	BES2	$J/\psi \to (p\pi^-)\overline{n}$
1077±643	VRANA	00	DPWA	Multichannel

N(2100) DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$N\pi$	8–18 %
Γ_2	$N\eta$	seen
Γ_3	ΛK	seen
Γ_4	$N\pi\pi$	20–40 %
Γ_5	$\Delta(1232)\pi$	
Γ_6	$\Delta(1232)\pi$, *P*-wave	6–14 %
Γ_7	$N\rho$	
Γ_8	$N\rho$, S=1/2, *P*-wave	seen
Γ_9	$N\sigma$	14–26 %
Γ_{10}	$N(1535)\pi$	26–34 %
Γ_{11}	$N\gamma$, helicity=1/2	0.001–0.012 %

N(2100) BRANCHING RATIOS

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

VALUE (%)	DOCUMENT ID		TECN	COMMENT
16 ± 5	SOKHOYAN	15A	DPWA	Multichannel
12 ± 3	CUTKOSKY	80	IPWA	$\pi N \to \pi N$
10 ± 4	HOEHLER	79	IPWA	$\pi N \to \pi N$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
16 ± 5	BATINIC	10	DPWA	$\pi N \to N\pi, N\eta$
2 ± 5	VRANA	00	DPWA	Multichannel

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

VALUE (%)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
83 ± 5	BATINIC	10	DPWA	$\pi N \to N\pi, N\eta$
61 ± 61	VRANA	00	DPWA	Multichannel

$\Gamma(\Lambda K)/\Gamma_{total}$ $\qquad$ Γ_3/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
21 ± 20	VRANA	00	DPWA	Multichannel

$\Gamma(\Delta(1232)\pi, P\text{-wave})/\Gamma_{total}$ $\qquad$ Γ_6/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
10 ± 4	SOKHOYAN	15A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
2 ± 1	VRANA	00	DPWA	Multichannel

$\Gamma(N\rho, S=1/2, P\text{-wave})/\Gamma_{total}$ $\qquad$ Γ_8/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4 ± 1	VRANA	00	DPWA	Multichannel

$\Gamma(N\sigma)/\Gamma_{total}$ $\qquad$ Γ_9/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
20 ± 6	SOKHOYAN	15A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
10 ± 1	VRANA	00	DPWA	Multichannel

$\Gamma(N(1535)\pi)/\Gamma_{total}$ $\qquad$ Γ_{10}/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
30 ± 4	SOKHOYAN	15A	DPWA	Multichannel

N(2100) PHOTON DECAY AMPLITUDES AT THE POLE

N(2100) $\to$ $p\gamma$, helicity-1/2 amplitude $A_{1/2}$

MODULUS (GeV$^{-1/2}$)	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.011 ± 0.004	65 ± 30	SOKHOYAN	15A	DPWA	Multichannel

N(2100) BREIT-WIGNER PHOTON DECAY AMPLITUDES

N(2100) → *p*γ, helicity-1/2 amplitude A$_{1/2}$

VALUE (GeV$^{-1/2}$)	DOCUMENT ID		TECN	COMMENT
0.010±0.004	SOKHOYAN	15A	DPWA	Multichannel

N(2100) FOOTNOTES

[1] Fit to the amplitudes of HOEHLER 79.

N(2100) REFERENCES

SOKHOYAN	15A	EPJ A51 95	V. Sokhoyan *et al.*	(CBELSA/TAPS Collab.)
SVARC	14	PR C89 045205	A. Svarc *et al.*	
BATINIC	10	PR C82 038203	M. Batinic *et al.*	(ZAGR)
ABLIKIM	06K	PRL 97 062001	M. Ablikim *et al.*	(BES II Collab.)
VRANA	00	PRPL 328 181	T.P. Vrana, S.A. Dytman, T.-S.H. Lee	(PITT, ANL)
CUTKOSKY	80	Toronto Conf. 19	R.E. Cutkosky *et al.*	(CMU, LBL) IJP
Also		PR D20 2839	R.E. Cutkosky *et al.*	(CMU, LBL)
HOEHLER	79	PDAT 12-1	G. Hohler *et al.*	(KARLT) IJP
Also		Toronto Conf. 3	R. Koch	(KARLT) IJP