

$N(2100) 1/2^+$ $I(J^P) = \frac{1}{2}(\frac{1}{2}^+)$ Status: *

OMITTED FROM SUMMARY TABLE

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

 $N(2100)$ BREIT-WIGNER MASS

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
≈ 2100 OUR ESTIMATE			
2125 ± 75	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$
2050 ± 20	HOEHLER	79	IPWA $\pi N \rightarrow \pi N$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
2157 ± 42	BATINIC	10	DPWA $\pi N \rightarrow N\pi, N\eta$
2068 ± 3 ⁺¹⁵ ₋₄₀	ABLIKIM	06K	BES2 $J/\psi \rightarrow (p\pi^-)\bar{n}$
2084 ± 93	VRANA	00	DPWA Multichannel
1986 ± 26 ⁺¹⁰ ₋₃₀	PLOETZKE	98	SPEC $\gamma p \rightarrow p\eta'(958)$

 $N(2100)$ BREIT-WIGNER WIDTH

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
260 ± 100	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$
200 ± 30	HOEHLER	79	IPWA $\pi N \rightarrow \pi N$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
355 ± 88	BATINIC	10	DPWA $\pi N \rightarrow N\pi, N\eta$
165 ± 14 ± 40	ABLIKIM	06K	BES2 $J/\psi \rightarrow (p\pi^-)\bar{n}$
1077 ± 643	VRANA	00	DPWA Multichannel
296 ± 100 ⁺⁶⁰ ₋₁₀	PLOETZKE	98	SPEC $\gamma p \rightarrow p\eta'(958)$

 $N(2100)$ POLE POSITION**REAL PART**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2052 ± 6 ± 3	¹ SVARC	14	MLS $\pi N \rightarrow \pi N$
2120 ± 40	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
2120 ± 47	BATINIC	10	DPWA $\pi N \rightarrow N\pi, N\eta$
1810	VRANA	00	DPWA Multichannel
not seen	ARNDT	91	DPWA $\pi N \rightarrow \pi N$ Soln SM90

-2×IMAGINARY PART

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
337 ± 10 ± 4	¹ SVARC	14	MLS $\pi N \rightarrow \pi N$
240 ± 80	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

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

346±80	BATINIC	10	DPWA	$\pi N \rightarrow N\pi, N\eta$
622	VRANA	00	DPWA	Multichannel
not seen	ARNDT	91	DPWA	$\pi N \rightarrow \pi N$ Soln SM90

N(2100) ELASTIC POLE RESIDUE

MODULUS $|r|$

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
30±1±1	¹ SVARC	14	MLS $\pi N \rightarrow \pi N$
14±7	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

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

33	BATINIC	10	DPWA	$\pi N \rightarrow N\pi, N\eta$
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PHASE θ

VALUE (°)	DOCUMENT ID	TECN	COMMENT
-92± 3±2	¹ SVARC	14	MLS $\pi N \rightarrow \pi N$
35±25	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

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

-59	BATINIC	10	DPWA	$\pi N \rightarrow N\pi, N\eta$
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N(2100) DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $N\pi$	
Γ_2 $N\eta$	(61±60) %
Γ_3 ΛK	
Γ_4 $N\pi\pi$	
Γ_5 $\Delta(1232)\pi, P$ -wave	
Γ_6 $N\rho, S=1/2, P$ -wave	
Γ_7 $N(\pi\pi)_{S\text{-wave}}^{I=0}$	

N(2100) BRANCHING RATIOS

$\Gamma(N\pi)/\Gamma_{\text{total}}$	VALUE (%)	DOCUMENT ID	TECN	COMMENT	Γ_1/Γ
	12±3	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$	
	10±4	HOEHLER	79	IPWA $\pi N \rightarrow \pi N$	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
	16±5	BATINIC	10	DPWA $\pi N \rightarrow N\pi, N\eta$	
	2±5	VRANA	00	DPWA Multichannel	

$\Gamma(N\eta)/\Gamma_{\text{total}}$	VALUE (%)	DOCUMENT ID	TECN	COMMENT	Γ_2/Γ
	61±61	VRANA	00	DPWA Multichannel	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
	83± 5	BATINIC	10	DPWA $\pi N \rightarrow N\pi, N\eta$	

$\Gamma(\Lambda K)/\Gamma_{\text{total}}$				Γ_3/Γ
VALUE (%)	DOCUMENT ID	TECN	COMMENT	
21 ± 20	VRANA	00	DPWA	Multichannel

$(\Gamma_i \Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\pi \rightarrow N(2100) \rightarrow \Delta(1232)\pi$, <i>P</i> -wave				$(\Gamma_1 \Gamma_5)^{1/2}/\Gamma$
VALUE (%)	DOCUMENT ID	TECN	COMMENT	
2 ± 1	VRANA	00	DPWA	Multichannel

$\Gamma(\Delta(1232)\pi, P\text{-wave})/\Gamma_{\text{total}}$				Γ_5/Γ
VALUE (%)	DOCUMENT ID	TECN	COMMENT	
2 ± 1	VRANA	00	DPWA	Multichannel

$\Gamma(N\rho, S=1/2, P\text{-wave})/\Gamma_{\text{total}}$				Γ_6/Γ
VALUE (%)	DOCUMENT ID	TECN	COMMENT	
4 ± 1	VRANA	00	DPWA	Multichannel

$\Gamma(N(\pi\pi)_{S\text{-wave}}^{I=0})/\Gamma_{\text{total}}$				Γ_7/Γ
VALUE (%)	DOCUMENT ID	TECN	COMMENT	
10 ± 1	VRANA	00	DPWA	Multichannel

N(2100) FOOTNOTES

¹ Fit to the amplitudes of HOEHLER 79.

N(2100) REFERENCES

SVARC	14	PR C89 045205	A. Svarc <i>et al.</i>	
BATINIC	10	PR C82 038203	M. Batinic <i>et al.</i>	(ZAGR)
ABLIKIM	06K	PRL 97 062001	M. Ablikim <i>et al.</i>	(BES II Collab.)
ARNDT	06	PR C74 045205	R.A. Arndt <i>et al.</i>	(GWU)
VRANA	00	PRPL 328 181	T.P. Vrana, S.A. Dytman,, T.-S.H. Lee	(PITT+)
PLOETZKE	98	PL B444 555	R. Ploetzke <i>et al.</i>	(Bonn SAPHIR Collab.)
ARNDT	91	PR D43 2131	R.A. Arndt <i>et al.</i>	(VPI, TELE) IJP
CUTKOSKY	80	Toronto Conf. 19	R.E. Cutkosky <i>et al.</i>	(CMU, LBL) IJP
Also		PR D20 2839	R.E. Cutkosky <i>et al.</i>	(CMU, LBL)
HOEHLER	79	PDAT 12-1	G. Hohler <i>et al.</i>	(KARLT) IJP
Also		Toronto Conf. 3	R. Koch	(KARLT) IJP