$N(2100)$ P_{11}

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

OMITTED FROM SUMMARY TABLE

$N(2100)$ BREIT-WIGNER MASS

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
≈ 2100 OUR ESTIMATE				
1885 ± 30	MANLEY	92	IPWA	$\pi N \to \pi N$ & $N\pi\pi$
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. • • •				
2084 ± 93	VRANA	00	DPWA	Multichannel
$1986 \pm 26 \,^{+10}_{-30}$	PLOETZKE	98	SPEC	$\gamma p \to p\eta'(958)$
2203 ± 70	BATINIC	95	DPWA	$\pi N \to N\pi$, $N\eta$

$N(2100)$ BREIT-WIGNER WIDTH

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
113 ± 44	MANLEY	92	IPWA	$\pi N \to \pi N$ & $N\pi\pi$
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. • • •				
1077 ± 643	VRANA	00	DPWA	Multichannel
$296 \pm 100 \,^{+60}_{-10}$	PLOETZKE	98	SPEC	$\gamma p \to p\eta'(958)$
418 ± 171	BATINIC	95	DPWA	$\pi N \to N\pi$, $N\eta$

$N(2100)$ POLE POSITION

REAL PART

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2120 ± 40	CUTKOSKY	80	IPWA	$\pi N \to \pi N$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1810	VRANA	00	DPWA	Multichannel
not seen	ARNDT	91	DPWA	$\pi N \to \pi N$ Soln SM90

−2×IMAGINARY PART

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
240 ± 80	CUTKOSKY	80	IPWA	$\pi N \to \pi N$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
622	VRANA	00	DPWA	Multichannel
not seen	ARNDT	91	DPWA	$\pi N \to \pi N$ Soln SM90

$N(2100)$ ELASTIC POLE RESIDUE

MODULUS $|r|$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
14 ± 7	CUTKOSKY	80	IPWA	$\pi N \rightarrow \pi N$

PHASE θ

VALUE (°)	*DOCUMENT ID*		*TECN*	*COMMENT*
35 ± 25	CUTKOSKY	80	IPWA	$\pi N \rightarrow \pi N$

$N(2100)$ 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	$N(\pi\pi)^{I=0}_{S\text{-wave}}$	

$N(2100)$ BRANCHING RATIOS

$\Gamma(N\pi)/\Gamma_{total}$ Γ_1/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.15 ± 0.06	MANLEY	92	IPWA	$\pi N \rightarrow \pi N$ & $N\pi\pi$
0.12 ± 0.03	CUTKOSKY	80	IPWA	$\pi N \rightarrow \pi N$
0.10 ± 0.04	HOEHLER	79	IPWA	$\pi N \rightarrow \pi N$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.02 ± 0.05	VRANA	00	DPWA	Multichannel
0.11 ± 0.07	BATINIC	95	DPWA	$\pi N \rightarrow N\pi$, $N\eta$

$\Gamma(N\eta)/\Gamma_{total}$ Γ_2/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.61 ± 0.61	VRANA	00	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.86 ± 0.07	BATINIC	95	DPWA	$\pi N \rightarrow N\pi$, $N\eta$

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

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.21 ± 0.20	VRANA	00	DPWA	Multichannel

$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{total}$ in $N\pi \rightarrow N(2100) \rightarrow \Delta(1232)\pi$, P-wave $(\Gamma_1\Gamma_5)^{1/2}/\Gamma$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
-0.19 ± 0.08	MANLEY	92	IPWA	$\pi N \rightarrow \pi N$ & $N\pi\pi$

$\Gamma(\Delta(1232)\pi, P\text{-wave})/\Gamma_{total}$ Γ_5/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.02±0.01	VRANA	00	DPWA	Multichannel

$\Gamma(N\rho, S=1/2, P\text{-wave})/\Gamma_{total}$ Γ_6/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.04±0.01	VRANA	00	DPWA	Multichannel

$\Gamma(N(\pi\pi)^{I=0}_{S\text{-wave}})/\Gamma_{total}$ Γ_7/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.10±0.01	VRANA	00	DPWA	Multichannel

N(2100) REFERENCES

VRANA	00	PRPL 328 181	T.P. Vrana, S.A. Dytman,, T.-S.H. Lee	(PITT+)
PLOETZKE	98	PL B444 555	R. Ploetzke *et al.*	(Bonn SAPHIR Collab.)
BATINIC	95	PR C51 2310	M. Batinic *et al.*	(BOSK, UCLA)
Also	98	PR C57 1004 (erratum)	M. Batinic *et al.*	
MANLEY	92	PR D45 4002	D.M. Manley, E.M. Saleski	(KENT) IJP
Also	84	PR D30 904	D.M. Manley *et al.*	(VPI)
ARNDT	91	PR D43 2131	R.A. Arndt *et al.*	(VPI, TELE) IJP
CUTKOSKY	80	Toronto Conf. 19	R.E. Cutkosky *et al.*	(CMU, LBL) IJP
Also	79	PR D20 2839	R.E. Cutkosky *et al.*	(CMU, LBL)
HOEHLER	79	PDAT 12-1	G. Hohler *et al.*	(KARLT) IJP
Also	80	Toronto Conf. 3	R. Koch	(KARLT) IJP