

**$N(2100) P_{11}$** 

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

OMITTED FROM SUMMARY TABLE

 **$N(2100)$  BREIT-WIGNER MASS**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b><math>\approx 2100</math> OUR ESTIMATE</b>			
$1885 \pm 30$	MANLEY	92	IPWA $\pi N \rightarrow \pi N$ & $N\pi\pi$
$2125 \pm 75$	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$
$2050 \pm 20$	HOEHLER	79	IPWA $\pi N \rightarrow \pi N$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
$2084 \pm 93$	VRANA	00	DPWA Multichannel
$1986 \pm 26^{+10}_{-30}$	PLOETZKE	98	SPEC $\gamma p \rightarrow p\eta'(958)$
$2203 \pm 70$	BATINIC	95	DPWA $\pi N \rightarrow N\pi, N\eta$

 **$N(2100)$  BREIT-WIGNER WIDTH**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$113 \pm 44$	MANLEY	92	IPWA $\pi N \rightarrow \pi N$ & $N\pi\pi$
$260 \pm 100$	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$
$200 \pm 30$	HOEHLER	79	IPWA $\pi N \rightarrow \pi N$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
$1077 \pm 643$	VRANA	00	DPWA Multichannel
$296 \pm 100^{+60}_{-10}$	PLOETZKE	98	SPEC $\gamma p \rightarrow p\eta'(958)$
$418 \pm 171$	BATINIC	95	DPWA $\pi N \rightarrow N\pi, N\eta$

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

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$2120 \pm 40$	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
1810	VRANA	00	DPWA Multichannel
not seen	ARNDT	91	DPWA $\pi N \rightarrow \pi N$ Soln SM90

**-2xIMAGINARY PART**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$240 \pm 80$	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
622	VRANA	00	DPWA Multichannel
not seen	ARNDT	91	DPWA $\pi N \rightarrow \pi N$ Soln SM90

 **$N(2100)$  ELASTIC POLE RESIDUE****MODULUS  $|r|$** 

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
$14 \pm 7$	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

## PHASE $\theta$

VALUE ( $^\circ$ )	DOCUMENT ID	TECN	COMMENT
$35 \pm 25$	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

## $N(2100)$ DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $N\pi$	$(61 \pm 60) \%$
$\Gamma_2$ $N\eta$	
$\Gamma_3$ $\Lambda K$	
$\Gamma_4$ $N\pi\pi$	
$\Gamma_5$ $\Delta(1232)\pi$ , $P$ -wave	
$\Gamma_6$ $N\rho$ , $S=1/2$ , $P$ -wave	
$\Gamma_7$ $N(\pi\pi)_{S\text{-wave}}^{I=0}$	

## $N(2100)$ BRANCHING RATIOS

$\Gamma(N\pi)/\Gamma_{\text{total}}$	DOCUMENT ID	TECN	COMMENT	$\Gamma_1/\Gamma$
0.15 $\pm$ 0.06	MANLEY	92	IPWA $\pi N \rightarrow \pi N$ & $N\pi\pi$	
0.12 $\pm$ 0.03	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$	
0.10 $\pm$ 0.04	HOEHLER	79	IPWA $\pi N \rightarrow \pi N$	

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

0.02 $\pm$ 0.05	VRANA	00	DPWA Multichannel	
0.11 $\pm$ 0.07	BATINIC	95	DPWA $\pi N \rightarrow N\pi, N\eta$	

$\Gamma(N\eta)/\Gamma_{\text{total}}$	DOCUMENT ID	TECN	COMMENT	$\Gamma_2/\Gamma$
<b>0.61 <math>\pm</math> 0.61</b>	VRANA	00	DPWA Multichannel	
0.86 $\pm$ 0.07	BATINIC	95	DPWA $\pi N \rightarrow N\pi, N\eta$	

$\Gamma(\Lambda K)/\Gamma_{\text{total}}$	DOCUMENT ID	TECN	COMMENT	$\Gamma_3/\Gamma$
0.21 $\pm$ 0.20	VRANA	00	DPWA Multichannel	

$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\pi \rightarrow N(2100) \rightarrow \Delta(1232)\pi$ , $P$ -wave	DOCUMENT ID	TECN	COMMENT	$(\Gamma_1\Gamma_5)^{1/2}/\Gamma$
-0.19 $\pm$ 0.08	MANLEY	92	IPWA $\pi N \rightarrow \pi N$ & $N\pi\pi$	

$\Gamma(\Delta(1232)\pi, P\text{-wave})/\Gamma_{\text{total}}$	DOCUMENT ID	TECN	COMMENT	$\Gamma_5/\Gamma$
0.02 $\pm$ 0.01	VRANA	00	DPWA Multichannel	

$\Gamma(N\rho, S=1/2, P\text{-wave})/\Gamma_{\text{total}}$	DOCUMENT ID	TECN	COMMENT	$\Gamma_6/\Gamma$
0.04 $\pm$ 0.01	VRANA	00	DPWA Multichannel	

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

$\Gamma_7/\Gamma$

<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
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 <i>et al.</i>	(Bonn SAPHIR Collab.)
BATINIC	95	PR C51 2310	M. Batinic <i>et al.</i>	(BOSK, UCLA)
Also	98	PR C57 1004 (erratum)	M. Batinic <i>et al.</i>	
MANLEY	92	PR D45 4002	D.M. Manley, E.M. Saleski	(KENT) IJP
Also	84	PR D30 904	D.M. Manley <i>et al.</i>	(VPI)
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	79	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	80	Toronto Conf. 3	R. Koch	(KARLT) IJP