

# N(2100) P<sub>11</sub>

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

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>
<b>≈ 2100 OUR ESTIMATE</b>			
1885 ± 30	MANLEY	92	IPWA $\pi N \rightarrow \pi N \ \& \ N\pi\pi$
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 <sup>+15</sup> <sub>-40</sub>	ABLIKIM	06K	BES $J/\psi \rightarrow (p\pi^-)\bar{n}$
2084 ± 93	VRANA	00	DPWA Multichannel
1986 ± 26 <sup>+10</sup> <sub>-30</sub>	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>
113 ± 44	MANLEY	92	IPWA $\pi N \rightarrow \pi N \ \& \ N\pi\pi$
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	BES $J/\psi \rightarrow (p\pi^-)\bar{n}$
1077 ± 643	VRANA	00	DPWA Multichannel
296 ± 100 <sup>+60</sup> <sub>-10</sub>	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>
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>
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 $|r|$

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
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	$\pi N \rightarrow N\pi, N\eta$

#### PHASE $\theta$

<u>VALUE (°)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
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	$\pi N \rightarrow N\pi, N\eta$

### N(2100) DECAY MODES

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

### N(2100) BRANCHING RATIOS

$\Gamma(N\pi)/\Gamma_{\text{total}}$	$\Gamma_1/\Gamma$		
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
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. ● ● ●			
0.16±0.05	BATINIC 10	DPWA	$\pi N \rightarrow N\pi, N\eta$
0.02±0.05	VRANA 00	DPWA	Multichannel

$\Gamma(N\eta)/\Gamma_{\text{total}}$				$\Gamma_2/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<b>0.61±0.61</b>	VRANA	00	DPWA Multichannel	
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.83±0.05	BATINIC	10	DPWA $\pi N \rightarrow N\pi, N\eta$	
$\Gamma(\Lambda K)/\Gamma_{\text{total}}$				$\Gamma_3/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
0.21±0.20	VRANA	00	DPWA Multichannel	
$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\pi \rightarrow N(2100) \rightarrow \Delta(1232)\pi$ , <i>P-wave</i>				$(\Gamma_1\Gamma_5)^{1/2}/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
-0.19±0.08	MANLEY	92	IPWA $\pi N \rightarrow \pi N \& N\pi\pi$	
$\Gamma(\Delta(1232)\pi, P\text{-wave})/\Gamma_{\text{total}}$				$\Gamma_5/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
0.02±0.01	VRANA	00	DPWA Multichannel	
$\Gamma(N\rho, S=1/2, P\text{-wave})/\Gamma_{\text{total}}$				$\Gamma_6/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
0.04±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

BATINIC	10	PR C82 038203	M. Batinic <i>et al.</i>	(ZAGR)
ABLIKIM	06K	PRL 97 062001	M. Ablikim <i>et al.</i>	(BES 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.)
MANLEY	92	PR D45 4002	D.M. Manley, E.M. Saleski	(KENT) IJP
Also		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		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