

$N(2000) F_{15}$

$$I(J^P) = \frac{1}{2}(\frac{5}{2}^+) \text{ Status: } **$$

OMITTED FROM SUMMARY TABLE

Older results have been retained simply because there is little information at all about this possible state.

 $N(2000)$ BREIT-WIGNER MASS

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
≈ 2000 OUR ESTIMATE			
1817.7	ARNDT	06	DPWA $\pi N \rightarrow \pi N, \eta N$
1903 ± 87	MANLEY	92	IPWA $\pi N \rightarrow \pi N \& N\pi\pi$
1882 ± 10	HOEHLER	79	IPWA $\pi N \rightarrow \pi N$
2025	AYED	76	IPWA $\pi N \rightarrow \pi N$
1970	¹ LANGBEIN	73	IPWA $\pi N \rightarrow \Sigma K$ (sol. 2)
2175	ALMEHED	72	IPWA $\pi N \rightarrow \pi N$
1930	DEANS	72	MPWA $\gamma p \rightarrow \Lambda K$ (sol. D)
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
1814	ARNDT	95	DPWA $\pi N \rightarrow N\pi$

 $N(2000)$ BREIT-WIGNER WIDTH

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
117.6	ARNDT	06	DPWA $\pi N \rightarrow \pi N, \eta N$
490 ± 310	MANLEY	92	IPWA $\pi N \rightarrow \pi N \& N\pi\pi$
95 ± 20	HOEHLER	79	IPWA $\pi N \rightarrow \pi N$
157	AYED	76	IPWA $\pi N \rightarrow \pi N$
170	¹ LANGBEIN	73	IPWA $\pi N \rightarrow \Sigma K$ (sol. 2)
150	ALMEHED	72	IPWA $\pi N \rightarrow \pi N$
112	DEANS	72	MPWA $\gamma p \rightarrow \Lambda K$ (sol. D)
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
176	ARNDT	95	DPWA $\pi N \rightarrow N\pi$

 $N(2000)$ POLE POSITION**REAL PART**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
1807	ARNDT	06	DPWA $\pi N \rightarrow \pi N, \eta N$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
1779	ARNDT	04	DPWA $\pi N \rightarrow \pi N, \eta N$

-2×IMAGINARY PART

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
109	ARNDT	06	DPWA $\pi N \rightarrow \pi N, \eta N$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
248	ARNDT	04	DPWA $\pi N \rightarrow \pi N, \eta N$

$N(2000)$ ELASTIC POLE RESIDUE**MODULUS $|r|$**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
60	ARNDT	06	DPWA $\pi N \rightarrow \pi N, \eta N$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
47	ARNDT	04	DPWA $\pi N \rightarrow \pi N, \eta N$

PHASE θ

<u>VALUE ($^\circ$)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
-67	ARNDT	06	DPWA $\pi N \rightarrow \pi N, \eta N$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
-61	ARNDT	04	DPWA $\pi N \rightarrow \pi N, \eta N$

 $N(2000)$ DECAY MODES

Mode
Γ_1 $N\pi$
Γ_2 $N\eta$
Γ_3 ΛK
Γ_4 ΣK
Γ_5 $N\pi\pi$
Γ_6 $\Delta(1232)\pi, P\text{-wave}$
Γ_7 $N\rho, S=3/2, P\text{-wave}$
Γ_8 $N\rho, S=3/2, F\text{-wave}$
Γ_9 $p\gamma$

 $N(2000)$ BRANCHING RATIOS

<u>$\Gamma(N\pi)/\Gamma_{\text{total}}$</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	<u>Γ_1/Γ</u>
0.127	ARNDT	06	DPWA $\pi N \rightarrow \pi N, \eta N$	
0.08 \pm 0.05	MANLEY	92	IPWA $\pi N \rightarrow \pi N \& N\pi\pi$	
0.04 \pm 0.02	HOEHLER	79	IPWA $\pi N \rightarrow \pi N$	
0.08	AYED	76	IPWA $\pi N \rightarrow \pi N$	
0.25	ALMEHED	72	IPWA $\pi N \rightarrow \pi N$	
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
0.10	ARNDT	95	DPWA $\pi N \rightarrow N\pi$	

<u>$(\Gamma_j\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\pi \rightarrow N(2000) \rightarrow N\eta$</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	<u>$(\Gamma_1\Gamma_2)^{1/2}/\Gamma$</u>
+0.03	BAKER	79	DPWA $\pi^- p \rightarrow n\eta$	

<u>$(\Gamma_j\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\pi \rightarrow N(2000) \rightarrow \Lambda K$</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	<u>$(\Gamma_1\Gamma_3)^{1/2}/\Gamma$</u>
not seen	SAXON	80	DPWA $\pi^- p \rightarrow \Lambda K^0$	

$(\Gamma_i \Gamma_f)^{1/2} / \Gamma_{\text{total}}$ in $N\pi \rightarrow N(2000) \rightarrow \Sigma K$ $(\Gamma_1 \Gamma_4)^{1/2} / \Gamma$

VALUE	DOCUMENT ID	TECN	COMMENT
0.022	² DEANS 75	DPWA	$\pi N \rightarrow \Sigma K$
0.05	¹ LANGBEIN 73	IPWA	$\pi N \rightarrow \Sigma K$ (sol. 2)

 $(\Gamma_i \Gamma_f)^{1/2} / \Gamma_{\text{total}}$ in $N\pi \rightarrow N(2000) \rightarrow \Delta(1232)\pi$, *P*-wave $(\Gamma_1 \Gamma_6)^{1/2} / \Gamma$

VALUE	DOCUMENT ID	TECN	COMMENT
$+0.10 \pm 0.06$	MANLEY 92	IPWA	$\pi N \rightarrow \pi N$ & $N\pi\pi$

 $(\Gamma_i \Gamma_f)^{1/2} / \Gamma_{\text{total}}$ in $N\pi \rightarrow N(2000) \rightarrow N\rho$, *S=3/2*, *P*-wave $(\Gamma_1 \Gamma_7)^{1/2} / \Gamma$

VALUE	DOCUMENT ID	TECN	COMMENT
-0.22 ± 0.08	MANLEY 92	IPWA	$\pi N \rightarrow \pi N$ & $N\pi\pi$

 $(\Gamma_i \Gamma_f)^{1/2} / \Gamma_{\text{total}}$ in $N\pi \rightarrow N(2000) \rightarrow N\rho$, *S=3/2*, *F*-wave $(\Gamma_1 \Gamma_8)^{1/2} / \Gamma$

VALUE	DOCUMENT ID	TECN	COMMENT
$+0.11 \pm 0.06$	MANLEY 92	IPWA	$\pi N \rightarrow \pi N$ & $N\pi\pi$

 $(\Gamma_i \Gamma_f)^{1/2} / \Gamma_{\text{total}}$ in $p\gamma \rightarrow N(2000) \rightarrow \Lambda K$ $(\Gamma_9 \Gamma_3)^{1/2} / \Gamma$

VALUE	DOCUMENT ID	TECN	COMMENT
0.0022	DEANS 72	MPWA	$\gamma p \rightarrow \Lambda K$ (sol. D)

N*(2000) FOOTNOTES**¹ Not seen in solution 1 of LANGBEIN 73.² Value given is from solution 1 of DEANS 75; not present in solutions 2, 3, or 4.N*(2000) REFERENCES**

ARNDT 06	PR C74 045205	R.A. Arndt <i>et al.</i>	(GWU)
ARNDT 04	PR C69 035213	R.A. Arndt <i>et al.</i>	(GWU, TRIU)
ARNDT 95	PR C52 2120	R.A. Arndt <i>et al.</i>	(VPI, BRCO)
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)
SAXON 80	NP B162 522	D.H. Saxon <i>et al.</i>	(RHEL, BRIS) IJP
BAKER 79	NP B156 93	R.D. Baker <i>et al.</i>	(RHEL) IJP
HOEHLER 79	PDAT 12-1	G. Hohler <i>et al.</i>	(KARLT) IJP
Also	Toronto Conf. 3	R. Koch	(KARLT) IJP
AYED 76	Thesis CEA-N-1921	R. Ayed	(SACL) IJP
DEANS 75	NP B96 90	S.R. Deans <i>et al.</i>	(SFLA, ALAH) IJP
LANGBEIN 73	NP B53 251	W. Langbein, F. Wagner	(MUNI) IJP
ALMEHED 72	NP B40 157	S. Almed, C. Lovelace	(LUND, RUTG) IJP
DEANS 72	PR D6 1906	S.R. Deans <i>et al.</i>	(SFLA) IJP