$N(1880)\ 1/2^+$

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

OMITTED FROM SUMMARY TABLE

N(1880) BREIT-WIGNER MASS

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
1875±40	GUTZ	14	DPWA	Multichannel
1870±35	ANISOVICH	12A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1900±36	SHRESTHA	12A	DPWA	Multichannel
1885±30	MANLEY	92	IPWA	$\pi N \to \pi N$ & $N\pi\pi$

N(1880) BREIT-WIGNER WIDTH

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
230± 50	GUTZ	14	DPWA	Multichannel
235± 65	ANISOVICH	12A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
485±142	SHRESTHA	12A	DPWA	Multichannel
113± 44	MANLEY	92	IPWA	$\pi N \to \pi N$ & $N\pi\pi$

N(1880) POLE POSITION

REAL PART

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
1870±40	GUTZ	14	DPWA	Multichannel
1860±35	ANISOVICH	12A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1801	SHRESTHA	12A	DPWA	Multichannel

−2×IMAGINARY PART

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
220±50	GUTZ	14	DPWA	Multichannel
250±70	ANISOVICH	12A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
383	SHRESTHA	12A	DPWA	Multichannel

N(1880) ELASTIC POLE RESIDUE

MODULUS $|r|$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
6±4	GUTZ	14	DPWA	Multichannel
6±4	ANISOVICH	12A	DPWA	Multichannel

PHASE θ

VALUE (°)	DOCUMENT ID		TECN	COMMENT
70±60	GUTZ	14	DPWA	Multichannel
80±65	ANISOVICH	12A	DPWA	Multichannel

$N(1880)$ INELASTIC POLE RESIDUE

The "normalized residue" is the residue divided by $\Gamma_{pole}/2$.

Normalized residue in $N\pi \rightarrow N(1880) \rightarrow N\eta$

MODULUS (%)	PHASE (°)	DOCUMENT ID		TECN	COMMENT
11±7	−75 ± 55	ANISOVICH	12A	DPWA	Multichannel

Normalized residue in $N\pi \rightarrow N(1880) \rightarrow \Lambda K$

MODULUS (%)	PHASE (°)	DOCUMENT ID		TECN	COMMENT
3±2	40 ± 40	ANISOVICH	12A	DPWA	Multichannel

Normalized residue in $N\pi \rightarrow N(1880) \rightarrow \Sigma K$

MODULUS (%)	PHASE (°)	DOCUMENT ID		TECN	COMMENT
11±6	95 ± 40	ANISOVICH	12A	DPWA	Multichannel

Normalized residue in $N\pi \rightarrow N(1880) \rightarrow \Delta\pi$, P-wave

MODULUS (%)	PHASE (°)	DOCUMENT ID		TECN	COMMENT
20±8	−150 ± 50	ANISOVICH	12A	DPWA	Multichannel

Normalized residue in $N\pi \rightarrow N(1880) \rightarrow N(1535)\pi$

MODULUS (%)	PHASE (°)	DOCUMENT ID		TECN	COMMENT
9±5	**130 ± 60**	GUTZ	14	DPWA	Multichannel

Normalized residue in $N\pi \rightarrow N(1880) \rightarrow N a_0(980)$

MODULUS (%)	PHASE (°)	DOCUMENT ID		TECN	COMMENT
4±3	**40 ± 65**	GUTZ	14	DPWA	Multichannel

$N(1880)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$N\pi$	
Γ_2	$N\eta$	
Γ_3	ΛK	
Γ_4	ΣK	
Γ_5	$\Delta(1232)\pi$	
Γ_6	$N(1535)\pi$	(8 ±4) %
Γ_7	$N a_0(980)$	(3.0±2.0) %
Γ_8	$N\rho$, S=1/2	
Γ_9	$N(\pi\pi)^{I=0}_{S-wave}$	
Γ_{10}	$p\gamma$	
Γ_{11}	$n\gamma$	

N(1880) BRANCHING RATIOS

$\Gamma(N\pi)/\Gamma_{total}$ Γ_1/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
6±3	GUTZ	14	DPWA	Multichannel
5±3	ANISOVICH	12A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
15±5	SHRESTHA	12A	DPWA	Multichannel
15±6	MANLEY	92	IPWA	$\pi N \rightarrow \pi N$ & $N\pi\pi$

$\Gamma(N\eta)/\Gamma_{total}$ Γ_2/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
25^{+30}_{-20}	ANISOVICH	12A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
16± 7	SHRESTHA	12A	DPWA	Multichannel

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

VALUE (%)	DOCUMENT ID		TECN	COMMENT
2± 1	ANISOVICH	12A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
32±10	SHRESTHA	12A	DPWA	Multichannel

$\Gamma(\Sigma K)/\Gamma_{total}$ Γ_4/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
17±7	ANISOVICH	12A	DPWA	Multichannel

$\Gamma(\Delta(1232)\pi)/\Gamma_{total}$ Γ_5/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
29±12	ANISOVICH	12A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
< 2	SHRESTHA	12A	DPWA	Multichannel

$\Gamma(N(1535)\pi)/\Gamma_{total}$ Γ_6/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
8±4	GUTZ	14	DPWA	Multichannel

$\Gamma(N a_0(980))/\Gamma_{total}$ Γ_7/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
3±2	GUTZ	14	DPWA	Multichannel

$\Gamma(N\rho, S{=}1/2)/\Gamma_{total}$ Γ_8/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<1	SHRESTHA	12A	DPWA	Multichannel

$\Gamma(N(\pi\pi)^{I=0}_{S-wave})/\Gamma_{total}$ Γ_9/Γ

VALUE (%)	*DOCUMENT ID*		*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •				
8±5	SHRESTHA	12A	DPWA	Multichannel

N(1880) PHOTON DECAY AMPLITUDES

N(1880) → *pγ*, helicity-1/2 amplitude $A_{1/2}$

VALUE ($GeV^{-1/2}$)	*DOCUMENT ID*		*TECN*	*COMMENT*
0.014±0.003	[1] ANISOVICH	12A	DPWA	Phase = $(-130 \pm 60)^\circ$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.021±0.006	SHRESTHA	12A	DPWA	Multichannel

N(1880) → *nγ*, helicity-1/2 amplitude $A_{1/2}$

VALUE ($GeV^{-1/2}$)	*DOCUMENT ID*		*TECN*	*COMMENT*
−0.060±0.050	ANISOVICH	13B	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.014±0.007	SHRESTHA	12A	DPWA	Multichannel

N(1880) FOOTNOTES

[1] This ANISOVICH 12A value is the complex helicity amplitude at the pole position.

N(1880) REFERENCES

GUTZ	14	EPJ A50 74	E. Gutz *et al.*	(CBELSA/TAPS Collab.)
ANISOVICH	13B	EPJ A49 67	A.V. Anisovich *et al.*	
ANISOVICH	12A	EPJ A48 15	A.V. Anisovich *et al.*	(BONN, PNPI)
SHRESTHA	12A	PR C86 055203	M. Shrestha, D.M. Manley	(KSU)
MANLEY	92	PR D45 4002	D.M. Manley, E.M. Saleski	(KSA)
Also		PR D30 904	D.M. Manley *et al.*	(VPI)