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

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

OMITTED FROM SUMMARY TABLE

$N(1880)$ POLE POSITION

REAL PART

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
1870±40	SOKHOYAN	15A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1870±40	GUTZ	14	DPWA	Multichannel
1860±35	ANISOVICH	12A	DPWA	Multichannel
1801	SHRESTHA	12A	DPWA	Multichannel

−2×IMAGINARY PART

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
220±50	SOKHOYAN	15A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
220±50	GUTZ	14	DPWA	Multichannel
250±70	ANISOVICH	12A	DPWA	Multichannel
383	SHRESTHA	12A	DPWA	Multichannel

$N(1880)$ ELASTIC POLE RESIDUE

MODULUS $|r|$

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
6±4	SOKHOYAN	15A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
6±4	GUTZ	14	DPWA	Multichannel
6±4	ANISOVICH	12A	DPWA	Multichannel

PHASE θ

VALUE (°)	DOCUMENT ID		TECN	COMMENT
70±60	SOKHOYAN	15A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
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 $N\pi \to N(1880) \to N\eta$

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.11±0.07	−75 ± 55	ANISOVICH	12A	DPWA	Multichannel

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

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.03±0.02	40 ± 40	ANISOVICH	12A	DPWA	Multichannel

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

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.11±0.06	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
0.14±0.08	−150 ± 55	SOKHOYAN	15A	DPWA	Multichannel

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

0.20±0.08	−150 ± 50	ANISOVICH	12A	DPWA	Multichannel

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

MODULUS	PHASE (°)	DOCUMENT ID	TECN	COMMENT
0.09±0.05	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
0.04±0.03	40 ± 65	GUTZ 14	DPWA	Multichannel

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

MODULUS	PHASE (°)	DOCUMENT ID		TECN	COMMENT
0.10±0.05	−140 ± 55	SOKHOYAN	15A	DPWA	Multichannel

$N(1880)$ BREIT-WIGNER MASS

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
1875±40	SOKHOYAN	15A	DPWA	Multichannel

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

1875±40	GUTZ	14	DPWA	Multichannel
1870±35	ANISOVICH	12A	DPWA	Multichannel
1900±36	SHRESTHA	12A	DPWA	Multichannel

$N(1880)$ BREIT-WIGNER WIDTH

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
230± 50	SOKHOYAN	15A	DPWA	Multichannel

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

230± 50	GUTZ	14	DPWA	Multichannel
235± 65	ANISOVICH	12A	DPWA	Multichannel
485±142	SHRESTHA	12A	DPWA	Multichannel

$N(1880)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$N\pi$	3–9 %
Γ_2	$N\eta$	5–55 %
Γ_3	ΛK	1–3 %
Γ_4	ΣK	10–24 %
Γ_5	$N\pi\pi$	30–80 %

Γ_6	$\Delta(1232)\pi$		18–42 %
Γ_7	$N\sigma$		10–40 %
Γ_8	$N(1535)\pi$		4–12 %
Γ_9	$N a_0(980)$		1–5 %
Γ_{10}	$p\gamma$, helicity=1/2		seen
Γ_{11}	$n\gamma$, helicity=1/2		0.002–0.63 %

N(1880) BRANCHING RATIOS

$\Gamma(N\pi)/\Gamma_{total}$ $\qquad$ Γ_1/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
6 ± 3	SOKHOYAN	15A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
6 ± 3	GUTZ	14	DPWA	Multichannel
5 ± 3	ANISOVICH	12A	DPWA	Multichannel
15 ± 5	SHRESTHA	12A	DPWA	Multichannel

$\Gamma(N\eta)/\Gamma_{total}$ $\qquad$ 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

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

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

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

$\Gamma(\Delta(1232)\pi)/\Gamma_{total}$ $\qquad$ Γ_6/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
30 ± 12	SOKHOYAN	15A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
29 ± 12	ANISOVICH	12A	DPWA	Multichannel
< 2	SHRESTHA	12A	DPWA	Multichannel

$\Gamma(N\sigma)/\Gamma_{total}$ $\qquad$ Γ_7/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
25 ± 15	SOKHOYAN	15A	DPWA	Multichannel
• • • We do not use the following data for averages, fits, limits, etc. • • •				
8 ± 5	SHRESTHA	12A	DPWA	Multichannel

$\Gamma(N(1535)\pi)/\Gamma_{total}$ Γ_8/Γ

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

$\Gamma(N\,a_0(980))/\Gamma_{total}$ Γ_9/Γ

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

$N(1880)$ BREIT-WIGNER PHOTON DECAY AMPLITUDES

$N(1880) \rightarrow p\gamma$, helicity-1/2 amplitude $A_{1/2}$

VALUE (GeV$^{-1/2}$)	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.021±0.006	SHRESTHA	12A	DPWA	Multichannel

$N(1880) \rightarrow n\gamma$, 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

$N(1880)$ REFERENCES

SOKHOYAN	15A	EPJ A51 95	V. Sokhoyan *et al.*	(CBELSA/TAPS Collab.)
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)