$\Delta(2000)\ 5/2^+$

$I(J^P) = \frac{3}{2}(\frac{5}{2}^+)$ Status: **

OMITTED FROM SUMMARY TABLE

Δ(2000) POLE POSITION

REAL PART

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
1998± 4±4	[1] SVARC	14	L+P	$\pi N \to \pi N$
2150±100	CUTKOSKY	80	IPWA	$\pi N \to \pi N$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1976	SHRESTHA	12A	DPWA	Multichannel
1697	VRANA	00	DPWA	Multichannel

−2×IMAGINARY PART

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
404± 10±4	[1] SVARC	14	L+P	$\pi N \to \pi N$
350±100	CUTKOSKY	80	IPWA	$\pi N \to \pi N$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
488	SHRESTHA	12A	DPWA	Multichannel
112	VRANA	00	DPWA	Multichannel

Δ(2000) ELASTIC POLE RESIDUE

MODULUS $|r|$

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
34±1±1	[1] SVARC	14	L+P	$\pi N \to \pi N$
16±5	CUTKOSKY	80	IPWA	$\pi N \to \pi N$

PHASE θ

VALUE (°)	*DOCUMENT ID*		*TECN*	*COMMENT*
110± 1±3	[1] SVARC	14	L+P	$\pi N \to \pi N$
150±90	CUTKOSKY	80	IPWA	$\pi N \to \pi N$

Δ(2000) BREIT-WIGNER MASS

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
2200±125	CUTKOSKY	80	IPWA	$\pi N \to \pi N$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
2015± 24	SHRESTHA	12A	DPWA	Multichannel
1724± 61	VRANA	00	DPWA	Multichannel
1752± 32	MANLEY	92	IPWA	$\pi N \to \pi N$ & $N\pi\pi$

Δ(2000) BREIT-WIGNER WIDTH

VALUE (MeV)	*DOCUMENT ID*		*TECN*	*COMMENT*
400±125	CUTKOSKY	80	IPWA	$\pi N \to \pi N$

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

500± 52	SHRESTHA	12A	DPWA	Multichannel
138± 68	VRANA	00	DPWA	Multichannel
251± 93	MANLEY	92	IPWA	$\pi N \rightarrow \pi N$ & $N\pi\pi$

Δ(2000) DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$N\pi$	3–11 %
Γ_2	$N\pi\pi$	
Γ_3	$\Delta(1232)\pi$, P-wave	seen
Γ_4	$\Delta(1232)\pi$, F-wave	seen
Γ_5	$N\rho$, S=3/2, P-wave	seen
Γ_6	$N\gamma$	
Γ_7	$N\gamma$, helicity=1/2	seen
Γ_8	$N\gamma$, helicity=3/2	seen

Δ(2000) BRANCHING RATIOS

$\Gamma(N\pi)/\Gamma_{total}$ Γ_1/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT
7±4	CUTKOSKY	80	IPWA	$\pi N \rightarrow \pi N$

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

7±1	SHRESTHA	12A	DPWA	Multichannel
0±1	VRANA	00	DPWA	Multichannel
2±1	MANLEY	92	IPWA	$\pi N \rightarrow \pi N$ & $N\pi\pi$

$\Gamma(\Delta(1232)\pi, P\text{-wave})/\Gamma_{total}$ Γ_3/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT

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

3±3	SHRESTHA	12A	DPWA	Multichannel
0±1	VRANA	00	DPWA	Multichannel

$\Gamma(\Delta(1232)\pi, F\text{-wave})/\Gamma_{total}$ Γ_4/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT

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

< 3	SHRESTHA	12A	DPWA	Multichannel
40±1	VRANA	00	DPWA	Multichannel

$\Gamma(N\rho, S$=3/2, $P\text{-wave})/\Gamma_{total}$ Γ_5/Γ

VALUE (%)	DOCUMENT ID		TECN	COMMENT

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

90± 3	SHRESTHA	12A	DPWA	Multichannel
60±60	VRANA	00	DPWA	Multichannel

Δ(2000) BREIT-WIGNER PHOTON DECAY AMPLITUDES

Δ(2000) → pγ, 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. • • •			
-0.061 ± 0.018	SHRESTHA 12A	DPWA	Multichannel

Δ(2000) → pγ, helicity-3/2 amplitude $A_{3/2}$

VALUE ($GeV^{-1/2}$)	*DOCUMENT ID*	*TECN*	*COMMENT*
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.158 ± 0.032	SHRESTHA 12A	DPWA	Multichannel

Δ(2000) FOOTNOTES

[1] Fit to the amplitudes of HOEHLER 79.

Δ(2000) REFERENCES

SVARC	14	PR C89 045205	A. Svarc *et al.*	
SHRESTHA	12A	PR C86 055203	M. Shrestha, D.M. Manley	(KSU)
VRANA	00	PRPL 328 181	T.P. Vrana, S.A. Dytman, T.-S.H. Lee	(PITT, ANL)
MANLEY	92	PR D45 4002	D.M. Manley, E.M. Saleski	(KSA) IJP
Also		PR D30 904	D.M. Manley *et al.*	(VPI)
CUTKOSKY	80	Toronto Conf. 19	R.E. Cutkosky *et al.*	(CMU, LBL)
Also		PR D20 2839	R.E. Cutkosky *et al.*	(CMU, LBL)
HOEHLER	79	PDAT 12-1	G. Hohler *et al.*	(KARLT)