

$\Delta(2300) 9/2^+$

$I(J^P) = \frac{3}{2}(\frac{9}{2}^+)$ Status: **

OMITTED FROM SUMMARY TABLE

The latest GWU analysis (ARNDT 06) finds no evidence for this resonance.

$\Delta(2300)$ BREIT-WIGNER MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
≈ 2300 OUR ESTIMATE			
2204.5 ± 3.4	CHEW	80	BPWA $\pi^+ p \rightarrow \pi^+ p$
2400 ± 125	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$
2217 ± 80	HOEHLER	79	IPWA $\pi N \rightarrow \pi N$
2450 ± 100	HENDRY	78	MPWA $\pi N \rightarrow \pi N$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
2400	CANDLIN	84	DPWA $\pi^+ p \rightarrow \Sigma^+ K^+$

$\Delta(2300)$ BREIT-WIGNER WIDTH

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
32.3 ± 1.0	CHEW	80	BPWA $\pi^+ p \rightarrow \pi^+ p$
425 ± 150	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$
300 ± 100	HOEHLER	79	IPWA $\pi N \rightarrow \pi N$
500 ± 200	HENDRY	78	MPWA $\pi N \rightarrow \pi N$
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
200	CANDLIN	84	DPWA $\pi^+ p \rightarrow \Sigma^+ K^+$

$\Delta(2300)$ POLE POSITION

REAL PART

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
2370 ± 80	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

-2xIMAGINARY PART

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
420 ± 160	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

$\Delta(2300)$ ELASTIC POLE RESIDUE

MODULUS $|r|$

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
10 ± 4	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

PHASE θ

VALUE ($^\circ$)	DOCUMENT ID	TECN	COMMENT
-20 ± 30	CUTKOSKY	80	IPWA $\pi N \rightarrow \pi N$

$\Delta(2300)$ DECAY MODES

Mode
Γ_1 $N\pi$
Γ_2 ΣK

$\Delta(2300)$ BRANCHING RATIOS

$\Gamma(N\pi)/\Gamma_{\text{total}}$	Γ_1/Γ
VALUE (%)	DOCUMENT ID TECN COMMENT
5	CHEW 80 BPWA $\pi^+ p \rightarrow \pi^+ p$
6 ± 2	CUTKOSKY 80 IPWA $\pi N \rightarrow \pi N$
3 ± 2	HOEHLER 79 IPWA $\pi N \rightarrow \pi N$
8 ± 2	HENDRY 78 MPWA $\pi N \rightarrow \pi N$

$(\Gamma_i \Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\pi \rightarrow \Delta(2300) \rightarrow \Sigma K$	$(\Gamma_1 \Gamma_2)^{1/2}/\Gamma$
VALUE	DOCUMENT ID TECN COMMENT
-0.017	CANDLIN 84 DPWA $\pi^+ p \rightarrow \Sigma^+ K^+$

$\Delta(2300)$ REFERENCES

ARNDT	06	PR C74 045205	R.A. Arndt <i>et al.</i>	
CANDLIN	84	NP B238 477	D.J. Candlin <i>et al.</i>	(GWU)
CHEW	80	Toronto Conf. 123	D.M. Chew	(EDIN, RAL, LOWC)
CUTKOSKY	80	Toronto Conf. 19	R.E. Cutkosky <i>et al.</i>	(LBL) IJP
Also		PR D20 2839	R.E. Cutkosky <i>et al.</i>	(CMU, LBL) IJP
HOEHLER	79	PDAT 12-1	G. Hohler <i>et al.</i>	(CMU, LBL)
Also		Toronto Conf. 3	R. Koch	(KARLT) IJP
HENDRY	78	PRL 41 222	A.W. Hendry	(KARLT) IJP
Also		ANP 136 1	A.W. Hendry	(IND, LBL) IJP
				(IND)