$\Delta(2300)$ H_{39}

$I(J^P) = \frac{3}{2}(\frac{9}{2}^+)$ 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	$\pi N \rightarrow \pi N$

−2×IMAGINARY 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 (°)	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

$\Gamma(N\pi)/\Gamma_{total}$ — Γ_1/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
0.05	CHEW	80	BPWA	$\pi^+ p \rightarrow \pi^+ p$
0.06±0.02	CUTKOSKY	80	IPWA	$\pi N \rightarrow \pi N$
0.03±0.02	HOEHLER	79	IPWA	$\pi N \rightarrow \pi N$
0.08±0.02	HENDRY	78	MPWA	$\pi N \rightarrow \pi N$

$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{total}$ 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 *et al.*	(GWU)
CANDLIN	84	NP B238 477	D.J. Candlin *et al.*	(EDIN, RAL, LOWC)
CHEW	80	Toronto Conf. 123	D.M. Chew	(LBL) IJP
CUTKOSKY	80	Toronto Conf. 19	R.E. Cutkosky *et al.*	(CMU, LBL) IJP
Also		PR D20 2839	R.E. Cutkosky *et al.*	(CMU, LBL)
HOEHLER	79	PDAT 12-1	G. Hohler *et al.*	(KARLT) IJP
Also		Toronto Conf. 3	R. Koch	(KARLT) IJP
HENDRY	78	PRL 41 222	A.W. Hendry	(IND, LBL) IJP
Also		ANP 136 1	A.W. Hendry	(IND)