$\Delta(2150)\ S_{31}$

$I(J^P) = \frac{3}{2}(\frac{1}{2}^-)$ Status: $*$

OMITTED FROM SUMMARY TABLE

$\Delta(2150)$ BREIT-WIGNER MASS

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
$\approx$ **2150** **OUR ESTIMATE**				
$2047.4\pm\ 27.0$	[1] CHEW	80	BPWA	$\pi^+ p \to \pi^+ p$
$2203.2\pm\ \ 8.4$	[1] CHEW	80	BPWA	$\pi^+ p \to \pi^+ p$
$2150\ \ \pm 100$	CUTKOSKY	80	IPWA	$\pi N \to \pi N$

$\Delta(2150)$ BREIT-WIGNER WIDTH

VALUE (MeV)	DOCUMENT ID		TECN	COMMENT
$121.6\pm\ 62.0$	[1] CHEW	80	BPWA	$\pi^+ p \to \pi^+ p$
$120.5\pm\ 45.0$	[1] CHEW	80	BPWA	$\pi^+ p \to \pi^+ p$
$200\ \ \pm 100$	CUTKOSKY	80	IPWA	$\pi N \to \pi N$

$\Delta(2150)$ POLE POSITION

REAL PART

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
2140 ± 80	CUTKOSKY	80 IPWA	$\pi N \to \pi N$

$-2\times$IMAGINARY PART

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
200 ± 80	CUTKOSKY	80 IPWA	$\pi N \to \pi N$

$\Delta(2150)$ ELASTIC POLE RESIDUE

MODULUS $|r|$

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
7 ± 2	CUTKOSKY	80 IPWA	$\pi N \to \pi N$

PHASE θ

VALUE (°)	DOCUMENT ID	TECN	COMMENT
-60 ± 90	CUTKOSKY	80 IPWA	$\pi N \to \pi N$

$\Delta(2150)$ DECAY MODES

	Mode
Γ_1	$N\pi$
Γ_2	ΣK

$\Delta(2150)$ BRANCHING RATIOS

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.41	[1] CHEW	80	BPWA	$\pi^+ p \to \pi^+ p$
0.37	[1] CHEW	80	BPWA	$\pi^+ p \to \pi^+ p$
0.08 ± 0.02	CUTKOSKY	80	IPWA	$\pi N \to \pi N$

$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\pi \to \Delta(2150) \to \Sigma K$ $(\Gamma_1\Gamma_2)^{1/2}/\Gamma$

VALUE	DOCUMENT ID		TECN	COMMENT
<0.03	CANDLIN	84	DPWA	$\pi^+ p \to \Sigma^+ K^+$

$\Delta(2150)$ FOOTNOTES

[1] CHEW 80 reports two S_{31} resonances in this mass region. Problems with this analysis are discussed in section 2.1.11 of HOEHLER 83.

$\Delta(2150)$ REFERENCES

CANDLIN	84	NP B238 477	D.J. Candlin *et al.*	(EDIN, RAL, LOWC)
HOEHLER	83	Landolt-Boernstein 1/9B2	G. Hohler	(KARLT)
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)