

$\Delta(2150) S_{31}$

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

OMITTED FROM SUMMARY TABLE

$\Delta(2150)$ BREIT-WIGNER MASS				
VALUE (MeV)	DOCUMENT ID	TECN	COMMENT	
≈ 2150 OUR ESTIMATE				
2047.4 ± 27.0	¹ CHEW	80	BPWA	$\pi^+ p \rightarrow \pi^+ p$
2203.2 ± 8.4	¹ CHEW	80	BPWA	$\pi^+ p \rightarrow \pi^+ p$
2150 ± 100	CUTKOSKY	80	IPWA	$\pi N \rightarrow \pi N$

$\Delta(2150)$ BREIT-WIGNER WIDTH				
VALUE (MeV)	DOCUMENT ID	TECN	COMMENT	
121.6 ± 62.0	¹ CHEW	80	BPWA	$\pi^+ p \rightarrow \pi^+ p$
120.5 ± 45.0	¹ CHEW	80	BPWA	$\pi^+ p \rightarrow \pi^+ p$
200 ± 100	CUTKOSKY	80	IPWA	$\pi N \rightarrow \pi N$

$\Delta(2150)$ POLE POSITION				
REAL PART				
VALUE (MeV)	DOCUMENT ID	TECN	COMMENT	
2140 ± 80	CUTKOSKY	80	IPWA	$\pi N \rightarrow \pi N$
−2×IMAGINARY PART				
VALUE (MeV)	DOCUMENT ID	TECN	COMMENT	
200 ± 80	CUTKOSKY	80	IPWA	$\pi N \rightarrow \pi N$

$\Delta(2150)$ ELASTIC POLE RESIDUE				
MODULUS $ r $				
VALUE (MeV)	DOCUMENT ID	TECN	COMMENT	
7 ± 2	CUTKOSKY	80	IPWA	$\pi N \rightarrow \pi N$
PHASE θ				
VALUE (°)	DOCUMENT ID	TECN	COMMENT	
-60 ± 90	CUTKOSKY	80	IPWA	$\pi N \rightarrow \pi N$

$\Delta(2150)$ 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	$\pi^+ p \rightarrow \pi^+ p$	
0.37	¹ CHEW	80	BPWA	$\pi^+ p \rightarrow \pi^+ p$	
0.08 ± 0.02	CUTKOSKY	80	IPWA	$\pi N \rightarrow \pi N$	

$(\Gamma_i \Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\pi \rightarrow \Delta(2150) \rightarrow \Sigma K$					$(\Gamma_1 \Gamma_2)^{1/2}/\Gamma$
VALUE	DOCUMENT ID	TECN	COMMENT		
<0.03	CANDLIN	84	DPWA	$\pi^+ p \rightarrow \Sigma^+ K^+$	

$\Delta(2150)$ 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 <i>et al.</i>	(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 <i>et al.</i>	(CMU, LBL) IJP
Also	79	PR D20 2839	R.E. Cutkosky <i>et al.</i>	(CMU, LBL)