

Δ(2150) S₃₁

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

OMITTED FROM SUMMARY TABLE

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

Δ(2150) BREIT-WIGNER MASS

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
≈ 2150 OUR ESTIMATE			
2047.4 ± 27.0	¹ CHEW	80	BPWA π ⁺ p → π ⁺ p
2203.2 ± 8.4	¹ CHEW	80	BPWA π ⁺ p → π ⁺ p
2150 ± 100	CUTKOSKY	80	IPWA π N → π N

Δ(2150) BREIT-WIGNER WIDTH

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
121.6 ± 62.0	¹ CHEW	80	BPWA π ⁺ p → π ⁺ p
120.5 ± 45.0	¹ CHEW	80	BPWA π ⁺ p → π ⁺ p
200 ± 100	CUTKOSKY	80	IPWA π N → π N

Δ(2150) POLE POSITION

REAL PART

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
2140 ± 80	CUTKOSKY	80	IPWA π N → π N

− 2×IMAGINARY PART

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
200 ± 80	CUTKOSKY	80	IPWA π N → π N

Δ(2150) ELASTIC POLE RESIDUE

MODULUS |r|

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
7 ± 2	CUTKOSKY	80	IPWA π N → π N

PHASE θ

<u>VALUE (°)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
− 60 ± 90	CUTKOSKY	80	IPWA π N → π N

Δ(2150) DECAY MODES

Mode
Γ ₁ N π
Γ ₂ Σ K

$\Delta(2150)$ BRANCHING RATIOS

$\Gamma(N\pi)/\Gamma_{\text{total}}$	<i>DOCUMENT ID</i>	<i>TECN</i>	<i>COMMENT</i>	Γ_1/Γ
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
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 $N\pi \rightarrow \Delta(2150) \rightarrow \Sigma K$	<i>DOCUMENT ID</i>	<i>TECN</i>	<i>COMMENT</i>	$(\Gamma_1 \Gamma_2)^{1/2}/\Gamma$
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
<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

ARNDT	06	PR C74 045205	R.A. Arndt <i>et al.</i>	(GWU)
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		PR D20 2839	R.E. Cutkosky <i>et al.</i>	(CMU, LBL)