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

$I(J^P) = \frac{3}{2}(\frac{1}{2}^-)$ 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 | $\pi^+ p \to \pi^+ p$ |
| 2203.2 ± 8.4 | [1] CHEW | 80 | BPWA | $\pi^+ p \to \pi^+ p$ |
| 2150 ± 100 | CUTKOSKY | 80 | IPWA | $\pi N \to \pi N$ |

## $\Delta(2150)$ BREIT-WIGNER WIDTH

| VALUE (MeV) | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|
| 121.6 ± 62.0 | [1] CHEW | 80 | BPWA | $\pi^+ p \to \pi^+ p$ |
| 120.5 ± 45.0 | [1] CHEW | 80 | BPWA | $\pi^+ p \to \pi^+ p$ |
| 200 ± 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×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 $\theta$

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

## $\Delta(2150)$ DECAY MODES

| | Mode |
|---|---|
| $\Gamma_1$ | $N\pi$ |
| $\Gamma_2$ | $\Sigma K$ |

## $\Delta(2150)$ BRANCHING RATIOS

### $\Gamma(N\pi)/\Gamma_{total}$ — $\Gamma_1/\Gamma$

| 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 | $\pi N \rightarrow \pi N$ |

### $(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{total}$ 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 *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 | 79 | PR D20 2839 | R.E. Cutkosky *et al.* | (CMU, LBL) |