

$\Sigma(2080) P_{13}$

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

OMITTED FROM SUMMARY TABLE

Suggested by some but not all partial-wave analyses across this region.

$\Sigma(2080)$ MASS

| VALUE (MeV) | DOCUMENT ID | TECN | COMMENT |
|---|---------------------|------|---|
| ≈ 2080 OUR ESTIMATE | | | |
| 2091 \pm 7 | ¹ CORDEN | 76 | DPWA $K^- n \rightarrow \Lambda \pi^-$ |
| 2070 to 2120 | DEBELLEFON | 76 | IPWA $K^- p \rightarrow \Lambda \pi^0$ |
| 2120 \pm 40 | BAILLON | 75 | IPWA $\bar{K} N \rightarrow \Lambda \pi$ (sol. 1) |
| 2140 \pm 40 | BAILLON | 75 | IPWA $\bar{K} N \rightarrow \Lambda \pi$ (sol. 2) |
| 2082 \pm 4 | COX | 70 | DPWA See CORDEN 76 |
| 2070 \pm 30 | LITCHFIELD | 70 | DPWA $K^- N \rightarrow \Lambda \pi$ |

$\Sigma(2080)$ WIDTH

| VALUE (MeV) | DOCUMENT ID | TECN | COMMENT |
|--------------|---------------------|------|---|
| 186 \pm 48 | ¹ CORDEN | 76 | DPWA $K^- n \rightarrow \Lambda \pi^-$ |
| 100 | DEBELLEFON | 76 | IPWA $K^- p \rightarrow \Lambda \pi^0$ |
| 240 \pm 50 | BAILLON | 75 | IPWA $\bar{K} N \rightarrow \Lambda \pi$ (sol. 1) |
| 200 \pm 50 | BAILLON | 75 | IPWA $\bar{K} N \rightarrow \Lambda \pi$ (sol. 2) |
| 87 \pm 20 | COX | 70 | DPWA See CORDEN 76 |
| 250 \pm 40 | LITCHFIELD | 70 | DPWA $K^- N \rightarrow \Lambda \pi$ |

$\Sigma(2080)$ DECAY MODES

| Mode |
|-------------------------|
| Γ_1 $N\bar{K}$ |
| Γ_2 $\Lambda\pi$ |

$\Sigma(2080)$ BRANCHING RATIOS

See "Sign conventions for resonance couplings" in the Note on Λ and Σ Resonances.

| $(\Gamma_i \Gamma_f)^{1/2} / \Gamma_{\text{total}}$ in $N\bar{K} \rightarrow \Sigma(2080) \rightarrow \Lambda\pi$ | $(\Gamma_1 \Gamma_2)^{1/2} / \Gamma$ | | |
|---|--------------------------------------|------|---|
| VALUE | DOCUMENT ID | TECN | COMMENT |
| -0.10 \pm 0.03 | ¹ CORDEN | 76 | DPWA $K^- n \rightarrow \Lambda \pi^-$ |
| -0.10 | DEBELLEFON | 76 | IPWA $K^- p \rightarrow \Lambda \pi^0$ |
| -0.13 \pm 0.04 | BAILLON | 75 | IPWA $\bar{K} N \rightarrow \Lambda \pi$ (sol. 1 and 2) |
| -0.16 \pm 0.03 | COX | 70 | DPWA See CORDEN 76 |
| -0.09 \pm 0.03 | LITCHFIELD | 70 | DPWA $K^- N \rightarrow \Lambda \pi$ |

$\Sigma(2080)$ FOOTNOTES

¹ Preferred solution 3; see CORDEN 76 for other possibilities, including a D_{15} at this mass.

$\Sigma(2080)$ REFERENCES

| | | | | |
|------------|----|-------------|-------------------------------|------------------------------|
| CORDEN | 76 | NP B104 382 | M.J. Corden <i>et al.</i> | (BIRM) IJP |
| DEBELLEFON | 76 | NP B109 129 | A. de Bellefon, A. Berthon | (CDEF) IJP |
| Also | 75 | NP B90 1 | A. de Bellefon <i>et al.</i> | (CDEF, SACL) IJP |
| BAILLON | 75 | NP B94 39 | P.H. Baillon, P.J. Litchfield | (CERN, RHEL) IJP |
| COX | 70 | NP B19 61 | G.F. Cox <i>et al.</i> | (BIRM, EDIN, GLAS, LOIC) IJP |
| LITCHFIELD | 70 | NP B22 269 | P.J. Litchfield | (RHEL) IJP |
