

$\Sigma(2080) \ 3/2^+$

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

OMITTED FROM SUMMARY TABLE
Suggested by some but not all partial-wave analyses across this re-
gion.

$\Sigma(2080)$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
2060 to 2120 ($\approx$ 2090) 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 $\overline{K} N \rightarrow \Lambda \pi$ (sol. 1)
2140 $\pm$ 40	BAILLON	75	IPWA $\overline{K} N \rightarrow \Lambda \pi$ (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
100 to 240 ($\approx$ 170) OUR ESTIMATE			
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 $\overline{K} N \rightarrow \Lambda \pi$ (sol. 1)
200 $\pm$ 50	BAILLON	75	IPWA $\overline{K} N \rightarrow \Lambda \pi$ (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	$N \overline{K}$
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 $N \overline{K} \rightarrow \Sigma(2080) \rightarrow \Lambda \pi$	$(\Gamma_1 \Gamma_2)^{1/2} / \Gamma$			
VALUE	DOCUMENT ID	TECN	COMMENT	
-0.10 ± 0.03	¹ CORDEN	76	DPWA	$K^- n \rightarrow \Lambda \pi^-$
-0.10	DEBELLEFON	76	IPWA	$K^- p \rightarrow \Lambda \pi^0$
-0.13 ± 0.04	BAILLON	75	IPWA	$\overline{K} N \rightarrow \Lambda \pi$ (sol. 1 and 2)
-0.16 ± 0.03	COX	70	DPWA	See CORDEN 76
-0.09 ± 0.03	LITCHFIELD	70	DPWA	$K^- N \rightarrow \Lambda \pi$

Σ(2080) FOOTNOTES

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

Σ(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 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