

$\Sigma(2080) P_{13}$

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

OMITTED FROM SUMMARY TABLE

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

**$\Sigma(2080)$  MASS**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
<b><math>\approx 2080</math> OUR ESTIMATE</b>			
2091 $\pm$ 7	<sup>1</sup> 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**

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
186 $\pm$ 48	<sup>1</sup> 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	
$\Gamma_1$	$N \bar{K}$
$\Gamma_2$	$\Lambda \pi$

**$\Sigma(2080)$  BRANCHING RATIOS**

See "Sign conventions for resonance couplings" in the Note on  $\Lambda$  and  $\Sigma$  Resonances.

<u><math>(\Gamma_i \Gamma_f)^{1/2} / \Gamma_{\text{total}}</math> in <math>N \bar{K} \rightarrow \Sigma(2080) \rightarrow \Lambda \pi</math></u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	<u><math>(\Gamma_1 \Gamma_2)^{1/2} / \Gamma</math></u>
-0.10 $\pm$ 0.03	<sup>1</sup> 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

<sup>1</sup> 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

---