Review of Particle Physics: C. Caso *et al.* (Particle Data Group), European Physical Journal **C3**, 1 (1998)

$\Sigma(2080)$ 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.

Σ(2080) MASS

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

Σ(2080) WIDTH

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

Σ(2080) DECAY MODES

	Mode
Γ_1	$N \overline{K}$
Γ_2	$\Lambda \pi$

Σ(2080) BRANCHING RATIOS

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

$(\Gamma_i \Gamma_f)^{1/2}/\Gamma_{total}$ in $N\overline{K} \to \Sigma(2080) \to \Lambda\pi$ — $(\Gamma_1 \Gamma_2)^{1/2}/\Gamma$

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
−0.10±0.03	[1] CORDEN	76	DPWA	$K^- n \to \Lambda \pi^-$
−0.10	DEBELLEFON	76	IPWA	$K^- p \to \Lambda \pi^0$
−0.13±0.04	BAILLON	75	IPWA	$\overline{K} N \to \Lambda \pi$ (sol. 1 and 2)
−0.16±0.03	COX	70	DPWA	See CORDEN 76
−0.09±0.03	LITCHFIELD	70	DPWA	$K^- N \to \Lambda \pi$

$\Sigma(2080)$ 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	+Cox, Dartnell, Kenyon, O'Neale+	(BIRM) IJP
DEBELLEFON	76	NP B109 129	De Bellefon, Berthon	(CDEF) IJP
Also	75	NP B90 1	De Bellefon, Berthon, Brunet+	(CDEF, SACL) IJP
BAILLON	75	NP B94 39	+Litchfield	(CERN, RHEL) IJP
COX	70	NP B19 61	+Islam, Colley+	(BIRM, EDIN, GLAS, LOIC) IJP
LITCHFIELD	70	NP B22 269		(RHEL) IJP