

$\Lambda(2020) F_{07}$

$I(J^P) = 0(\frac{7}{2}^+)$ Status: *

OMITTED FROM SUMMARY TABLE

In LITCHFIELD 71, need for the state rests solely on a possibly inconsistent polarization measurement at 1.784 GeV/c. HEMINGWAY 75 does not require this state. GOPAL 77 does not need it in either $N\overline{K}$ or $\Sigma\pi$. With new K^-n angular distributions included, DECLAIS 77 sees it. However, this and other new data are included in GOPAL 80 and the state is not required. BACCARI 77 weakly supports it.

$\Lambda(2020)$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
≈ 2020 OUR ESTIMATE			
2140	BACCARI	77	DPWA $K^-p \rightarrow \Lambda\omega$
2117	DECLAIS	77	DPWA $\overline{K}N \rightarrow \overline{K}N$
2100 ± 30	LITCHFIELD	71	DPWA $K^-p \rightarrow \overline{K}N$
2020 ± 20	BARBARO-...	70	DPWA $K^-p \rightarrow \Sigma\pi$

$\Lambda(2020)$ WIDTH

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
128	BACCARI	77	DPWA $K^-p \rightarrow \Lambda\omega$
167	DECLAIS	77	DPWA $\overline{K}N \rightarrow \overline{K}N$
120 ± 30	LITCHFIELD	71	DPWA $K^-p \rightarrow \overline{K}N$
160 ± 30	BARBARO-...	70	DPWA $K^-p \rightarrow \Sigma\pi$

$\Lambda(2020)$ DECAY MODES

Mode
$\Gamma_1 \quad N\overline{K}$
$\Gamma_2 \quad \Sigma\pi$
$\Gamma_3 \quad \Lambda\omega$

$\Lambda(2020)$ BRANCHING RATIOS

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

$\Gamma(N\overline{K})/\Gamma_{\text{total}}$				Γ_1/Γ
VALUE	DOCUMENT ID	TECN	COMMENT	
0.05	DECLAIS	77	DPWA $\overline{K}N \rightarrow \overline{K}N$	
0.05 ± 0.02	LITCHFIELD	71	DPWA $K^-p \rightarrow \overline{K}N$	

$(\Gamma_i \Gamma_f)^{1/2} / \Gamma_{\text{total}}$ in $N \bar{K} \rightarrow \Lambda(2020) \rightarrow \Sigma \pi$	$(\Gamma_1 \Gamma_2)^{1/2} / \Gamma$
VALUE	DOCUMENT ID TECN COMMENT
-0.15 ± 0.02	BARBARO-... 70 DPWA $K^- p \rightarrow \Sigma \pi$
$(\Gamma_i \Gamma_f)^{1/2} / \Gamma_{\text{total}}$ in $N \bar{K} \rightarrow \Lambda(2020) \rightarrow \Lambda \omega$	$(\Gamma_1 \Gamma_3)^{1/2} / \Gamma$
VALUE	DOCUMENT ID TECN COMMENT
< 0.05	BACCARI 77 DPWA $K^- p \rightarrow \Lambda \omega$

$\Lambda(2020)$ REFERENCES

GOPAL	80	Toronto Conf. 159	G.P. Gopal	(RHEL)
BACCARI	77	NC 41A 96	B. Baccari <i>et al.</i>	(SACL, CDEF) IJP
DECLAIS	77	CERN 77-16	Y. Declais <i>et al.</i>	(CAEN, CERN) IJP
GOPAL	77	NP B119 362	G.P. Gopal <i>et al.</i>	(LOIC, RHEL)
HEMINGWAY	75	NP B91 12	R.J. Hemingway <i>et al.</i>	(CERN, HEIDH, MPIM) IJP
LITCHFIELD	71	NP B30 125	P.J. Litchfield <i>et al.</i>	(RHEL, CDEF, SACL) IJP
BARBARO-...	70	Duke Conf. 173	A. Barbaro-Galtieri	(LRL) IJP
Hyperon Resonances, 1970				