$\Lambda(2020)$ 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	$K^-p \to \Lambda\omega$
2117	DECLAIS	77	DPWA	$\overline{K}N \to \overline{K}N$
2100±30	LITCHFIELD	71	DPWA	$K^-p \to \overline{K}N$
2020±20	BARBARO-...	70	DPWA	$K^-p \to \Sigma\pi$

$\Lambda(2020)$ WIDTH

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

$\Lambda(2020)$ DECAY MODES

	Mode
Γ_1	$N\overline{K}$
Γ_2	$\Sigma\pi$
Γ_3	$\Lambda\omega$

$\Lambda(2020)$ BRANCHING RATIOS

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

$\Gamma(N\overline{K})/\Gamma_{total}$ Γ_1/Γ

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.05	DECLAIS	77	DPWA	$\overline{K}N \to \overline{K}N$
0.05±0.02	LITCHFIELD	71	DPWA	$K^-p \to \overline{K}N$

$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{total}$ in $N\overline{K} \to \Lambda(2020) \to \Sigma\pi$ $(\Gamma_1\Gamma_2)^{1/2}/\Gamma$

VALUE	DOCUMENT ID		TECN	COMMENT
-0.15 ± 0.02	BARBARO-...	70	DPWA	$K^- p \to \Sigma\pi$

$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{total}$ in $N\overline{K} \to \Lambda(2020) \to \Lambda\omega$ $(\Gamma_1\Gamma_3)^{1/2}/\Gamma$

VALUE	DOCUMENT ID		TECN	COMMENT
<0.05	BACCARI	77	DPWA	$K^- p \to \Lambda\omega$

$\Lambda(2020)$ REFERENCES

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

Hyperon Resonances, 1970