

$\Lambda(2020) F_{07}$  $I(J^P) = 0(\frac{7}{2}^+)$  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  $N\bar{K}$  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
$\approx 2020$ OUR ESTIMATE			
2140	BACCARI 77	DPWA	$K^-p \rightarrow \Lambda\omega$
2117	DECLAIS 77	DPWA	$\bar{K}N \rightarrow \bar{K}N$
$2100 \pm 30$	LITCHFIELD 71	DPWA	$K^-p \rightarrow \bar{K}N$
$2020 \pm 20$	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	$\bar{K}N \rightarrow \bar{K}N$
$120 \pm 30$	LITCHFIELD 71	DPWA	$K^-p \rightarrow \bar{K}N$
$160 \pm 30$	BARBARO-... 70	DPWA	$K^-p \rightarrow \Sigma\pi$

 $\Lambda(2020)$  DECAY MODES

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

 $\Lambda(2020)$  BRANCHING RATIOS

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

$\Gamma(N\bar{K})/\Gamma_{\text{total}}$	DOCUMENT ID	TECN	COMMENT	$\Gamma_1/\Gamma$
0.05	DECLAIS 77	DPWA	$\bar{K}N \rightarrow \bar{K}N$	
$0.05 \pm 0.02$	LITCHFIELD 71	DPWA	$K^-p \rightarrow \bar{K}N$	

$(\Gamma_i \Gamma_f)^{1/2} / \Gamma_{\text{total}}$ in $N\bar{K} \rightarrow \Lambda(2020) \rightarrow \Sigma \pi$	$(\Gamma_1 \Gamma_2)^{1/2} / \Gamma$		
VALUE	DOCUMENT ID	TECN	COMMENT
$-0.15 \pm 0.02$	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				