

$\Lambda(2000) \ 1/2^-$  $I(J^P) = 0(\frac{1}{2}^-)$  Status: \*

## OMITTED FROM SUMMARY TABLE

BARBARO-GALTIERI 70 (in  $\Sigma\pi$ ) and BRANDSTETTER 72 (in  $\Lambda\omega$ ) proposed a state at about this mass. Those analyses are considered to be obsolete, see NAKKASYAN 75 and PDG 18.

 $\Lambda(2000)$  MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b><math>\approx 2000</math> OUR ESTIMATE</b>			
2020 $\pm$ 16	ZHANG	13A	DPWA Multichannel
2030 $\pm$ 30	CAMERON	78B	DPWA $K^- p \rightarrow N\bar{K}^*$

 $\Lambda(2000)$  WIDTH

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
255 $\pm$ 63	ZHANG	13A	DPWA Multichannel
125 $\pm$ 25	CAMERON	78B	DPWA $K^- p \rightarrow N\bar{K}^*$

 $\Lambda(2000)$  DECAY MODES

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1 \ N\bar{K}$	(27 $\pm$ 6) %
$\Gamma_2 \ \Sigma\pi$	
$\Gamma_3 \ \Lambda\eta$	(16 $\pm$ 7) %
$\Gamma_4 \ N\bar{K}^*(892), S=1/2, S\text{-wave}$	
$\Gamma_5 \ N\bar{K}^*(892), S=3/2, D\text{-wave}$	

 $\Lambda(2000)$  BRANCHING RATIOS

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

$\Gamma(N\bar{K})/\Gamma_{\text{total}}$				$\Gamma_1/\Gamma$
VALUE	DOCUMENT ID	TECN	COMMENT	
<b>0.27 <math>\pm</math> 0.06</b>	ZHANG	13A	DPWA Multichannel	
$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{\text{total}}$ in $N\bar{K} \rightarrow \Lambda(2000) \rightarrow \Sigma\pi$				$(\Gamma_1\Gamma_2)^{1/2}/\Gamma$
VALUE	DOCUMENT ID	TECN	COMMENT	
-0.07 $\pm$ 0.03	ZHANG	13A	DPWA Multichannel	
$\Gamma(\Lambda\eta)/\Gamma_{\text{total}}$				$\Gamma_3/\Gamma$
VALUE	DOCUMENT ID	TECN	COMMENT	
<b>0.16 <math>\pm</math> 0.07</b>	ZHANG	13A	DPWA Multichannel	

$(\Gamma_i \Gamma_f)^{1/2} / \Gamma_{\text{total}}$  in  $N\bar{K} \rightarrow \Lambda(2000) \rightarrow N\bar{K}^*(892)$ ,  $S=1/2$ ,  $S$ -wave  $(\Gamma_1 \Gamma_4)^{1/2} / \Gamma$

VALUE	DOCUMENT ID	TECN	COMMENT
$-0.12 \pm 0.03$	<sup>1</sup> CAMERON 78B	DPWA	$K^- p \rightarrow N\bar{K}^*$

<sup>1</sup> The published sign has been changed to be in accord with the baryon-first convention.

$(\Gamma_i \Gamma_f)^{1/2} / \Gamma_{\text{total}}$  in  $N\bar{K} \rightarrow \Lambda(2000) \rightarrow N\bar{K}^*(892)$ ,  $S=3/2$ ,  $D$ -wave  $(\Gamma_1 \Gamma_5)^{1/2} / \Gamma$

VALUE	DOCUMENT ID	TECN	COMMENT
$+0.34 \pm 0.05$	ZHANG 13A	DPWA	Multichannel
$+0.09 \pm 0.03$	CAMERON 78B	DPWA	$K^- p \rightarrow N\bar{K}^*$

## $\Lambda(2000)$ REFERENCES

PDG 18	PR D98 030001	M. Tanabashi <i>et al.</i>	(PDG Collab.)
ZHANG 13A	PR C88 035205	H. Zhang <i>et al.</i>	(KSU)
CAMERON 78B	NP B146 327	W. Cameron <i>et al.</i>	(RHEL, LOIC) IJP
NAKKASYAN 75	NP B93 85	A. Nakkasyan	(CERN) IJP
BRANDSTET... 72	NP B39 13	A.A. Brandstetter <i>et al.</i>	(RHEL, CDEF+)
BARBARO-... 70	Duke Conf. 173	A. Barbaro-Galtieri	(LRL) IJP
Hyperon Resonances, 1970			