

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

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

 $\Lambda(2000)$ WIDTH

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
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 (Γ_i/Γ)
$\Gamma_1 \ N\bar{K}$	(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 Λ and Σ Resonances.

$\Gamma(N\bar{K})/\Gamma_{\text{total}}$	Γ_1/Γ		
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.27 \pm 0.06	ZHANG	13A	DPWA Multichannel

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

$\Gamma(\Lambda\eta)/\Gamma_{\text{total}}$	Γ_3/Γ		
<u>VALUE</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
0.16 \pm 0.07	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 ± 0.03	¹ CAMERON 78B	DPWA	$K^- p \rightarrow N\bar{K}^*$

¹ 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			