

$\Lambda(2000)$ $I(J^P) = 0(\frac{1}{2}^-)$ 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
≈ 2000 OUR ESTIMATE			
2020 ± 16	ZHANG	13A	DPWA Multichannel
2030 ± 30	CAMERON	78B	DPWA $K^- p \rightarrow N\bar{K}^*$

 $\Lambda(2000)$ WIDTH

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

 $\Lambda(2000)$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $N\bar{K}$	$(27 \pm 6) \%$
Γ_2 $\Sigma\pi$	
Γ_3 $\Lambda\eta$	$(16 \pm 7) \%$
Γ_4 $N\bar{K}^*(892)$, $S=1/2$, S -wave	
Γ_5 $N\bar{K}^*(892)$, $S=3/2$, D -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		
VALUE	DOCUMENT ID	TECN	COMMENT
0.27 ± 0.06	ZHANG	13A	DPWA Multichannel

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

$\Gamma(\Lambda\eta)/\Gamma_{\text{total}}$	Γ_3/Γ		
VALUE	DOCUMENT ID	TECN	COMMENT
0.16 ± 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				