$\Lambda(2000)\ 1/2^-$

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

$\Lambda(2000)$ WIDTH

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

$\Lambda(2000)$ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$N\overline{K}$	(27±6) %
Γ_2	$\Sigma\pi$	
Γ_3	$\Lambda\eta$	(16±7) %
Γ_4	$N\overline{K}^*(892)$, S=1/2, S-wave	
Γ_5	$N\overline{K}^*(892)$, S=3/2, D-wave	

$\Lambda(2000)$ BRANCHING RATIOS

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

$\Gamma(N\overline{K})/\Gamma_{\text{total}}$ 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 $N\overline{K} \rightarrow \Lambda(2000) \rightarrow \Sigma\pi$ $(\Gamma_1\Gamma_2)^{1/2}/\Gamma$

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

$(\Gamma_i\Gamma_f)^{1/2}/\Gamma_{total}$ in $N\overline{K} \to \Lambda(2000) \to N\overline{K}^*(892)$, 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	$K^- p \to N\overline{K}^*$

[1] The published sign has been changed to be in accord with the baryon-first convention.

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

VALUE	DOCUMENT ID		TECN	COMMENT
$+0.34\pm0.05$	ZHANG	13A	DPWA	Multichannel
$+0.09\pm0.03$	CAMERON	78B	DPWA	$K^- p \to N\overline{K}^*$

$\Lambda(2000)$ REFERENCES

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