$\Lambda(2585)$ BRANCHING RATIOS (BUMPS)

$(J+\frac{1}{2})\times\Gamma(N\overline{K})/\Gamma_{total}$ Γ_1/Γ

J is not known, so only $(J+\frac{1}{2})\times\Gamma(N\overline{K})/\Gamma_{total}$ can be given.

VALUE	DOCUMENT ID		TECN	COMMENT
1	ABRAMS	70	CNTR	$K^- p$, $K^- d$ total
0.12 ± 0.12	[1] BRICMAN	70	CNTR	Total, charge exchange

$\Lambda(2585)$ FOOTNOTES (BUMPS)

[1] The resonance is at the end of the region analyzed — no clear signal.

$\Lambda(2585)$ REFERENCES (BUMPS)

ABRAMS	70	PR D1 1917	+Cool, Giacomelli, Kycia, Leontic, Li+	(BNL) I
Also	66	PRL 16 1228	Cool, Giacomelli, Kycia, Leontic, Lundby+	(BNL) I
BRICMAN	70	PL 31B 152	+Ferro-Luzzi, Perreau+	(CERN, CAEN, SACL)
LU	70	PR D2 1846	+Greenberg, Hughes, Minehart, Mori+	(YALE)

Σ BARYONS $(S=-1,\ I=1)$

$\Sigma^+ = uus,\quad \Sigma^0 = uds,\quad \Sigma^- = dds$

Σ^+

$I(J^P) = 1(\frac{1}{2}^+)$ Status: ∗∗∗∗

We have omitted some results that have been superseded by later experiments. The omitted results may be found in our 1986 edition (Physics Letters **170B**) or in earlier editions.

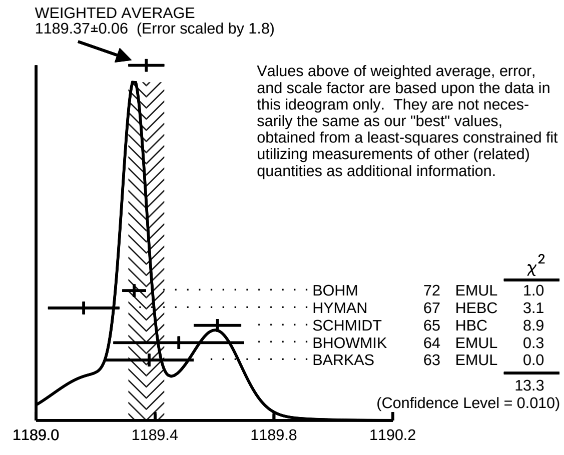
Σ^+ MASS

The fit uses Σ^+, Σ^0, Σ^-, and Λ mass and mass-difference measurements.

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
1189.37±0.07 OUR FIT		Error includes scale factor of 2.2.			
1189.37±0.06 OUR AVERAGE		Error includes scale factor of 1.8. See the ideogram below.			
1189.33 ± 0.04	607	[1] BOHM	72	EMUL	
1189.16 ± 0.12		HYMAN	67	HEBC	
1189.61 ± 0.08	4205	SCHMIDT	65	HBC	See note with Λ mass
1189.48 ± 0.22	58	[2] BHOWMIK	64	EMUL	
1189.38 ± 0.15	144	[2] BARKAS	63	EMUL	

[1] BOHM 72 is updated with our 1973 K^-, π^-, and π^0 masses (Reviews of Modern Physics **45** No. 2 Pt. II (1973)).

[2] These masses have been raised 30 keV to take into account a 46 keV increase in the proton mass and a 21 keV decrease in the π^0 mass (note added 1967 edition, Reviews of Modern Physics **39** 1 (1967)).



Σ^+ mass (MeV)

Σ^+ MEAN LIFE

Measurements with an error $\geq 0.1\times10^{-10}$ s have been omitted.

VALUE (10^{-10} s)	EVTS	DOCUMENT ID		TECN	COMMENT
0.799±0.004 OUR AVERAGE					
0.798 ± 0.005	30k	MARRAFFINO	80	HBC	$K^- p$ 0.42–0.5 GeV/c
0.807 ± 0.013	5719	CONFORTO	76	HBC	$K^- p$ 1–1.4 GeV/c
0.83 ± 0.04	526	BAKKER	71	DBC	$K^- n\rightarrow\Sigma^+\pi^-\pi^-$
0.795 ± 0.010	20k	EISELE	70	HBC	$K^- p$ at rest
0.803 ± 0.008	10664	BARLOUTAUD	69	HBC	$K^- p$ 0.4–1.2 GeV/c
0.83 ± 0.032	1300	[3] CHANG	66	HBC	
0.80 ± 0.07	381	COOK	66	OSPK	
0.84 ± 0.09	181	BALTAY	65	HBC	
0.76 ± 0.03	900	CARAYAN...	65	HBC	
$0.749^{+0.056}_{-0.052}$	192	GRARD	62	HBC	
0.765 ± 0.04	456	HUMPHREY	62	HBC	

[3] We have increased the CHANG 66 error of 0.018; see our 1970 edition, Reviews of Modern Physics **42** No. 1 (1970).

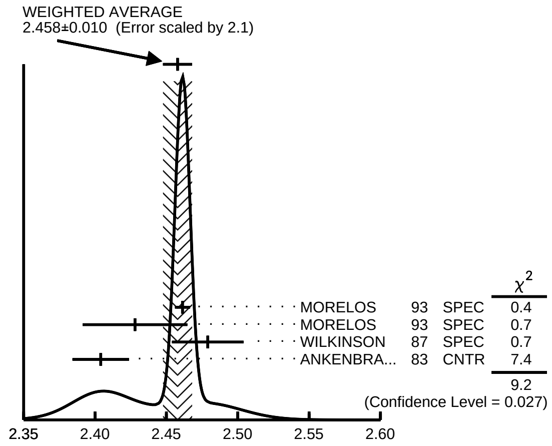
Σ^+ MAGNETIC MOMENT

See the Note on Baryon Magnetic Moments in the Λ Listings. Measurements with an error $\geq 0.1\ \mu_N$ have been omitted.

VALUE (μ_N)	EVTS	DOCUMENT ID		TECN	COMMENT
2.458 ±0.010 OUR AVERAGE		Error includes scale factor of 2.1. See the ideogram below.			
$2.4613\pm0.0034\pm0.0040$	250k	MORELOS	93	SPEC	pCu 800 GeV
$2.428\pm0.036\pm0.007$	12k	[4] MORELOS	93	SPEC	pCu 800 GeV
$2.479\pm0.012\pm0.022$	137k	WILKINSON	87	SPEC	pBe 400 GeV
2.4040 ± 0.0198	44k	[5] ANKENBRA...	83	CNTR	pCu 400 GeV

[4] We assume CPT invariance: this is (minus) the $\overline{\Sigma}^-$ magnetic moment as measured by MORELOS 93. See below for the moment difference testing CPT.

[5] ANKENBRANDT 83 gives the value $2.38\pm0.02\mu_N$. MORELOS 93 uses the same hyperon magnet and channel and claims to determine the field integral better, leading to the revised value given here.



Σ^+ magnetic moment (μ_N)

$(\mu_{\Sigma^+} - |\mu_{\overline{\Sigma}^-}|)\ /\ |\mu|_{average}$

A test of CPT invariance.

VALUE	DOCUMENT ID		TECN	COMMENT
0.014±0.015	[6] MORELOS	93	SPEC	pCu 800 GeV

[6] This is our calculation from the MORELOS 93 measurements of the Σ^+ and $\overline{\Sigma}^-$ magnetic moments given above. The statistical error on $\mu_{\overline{\Sigma}^-}$ dominates the error here.