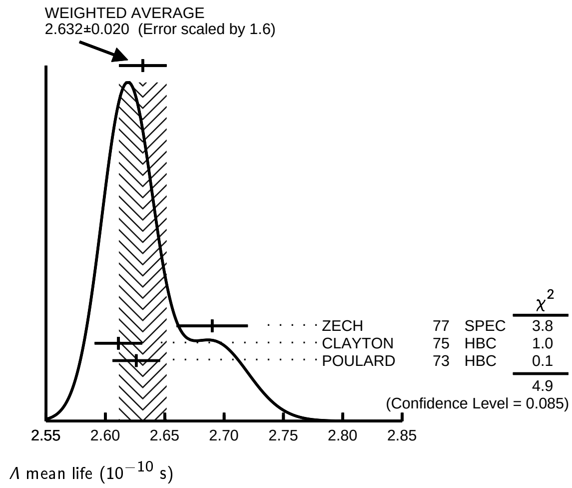


$(\tau_\Lambda - \tau_{\overline{\Lambda}}) / \tau_{\text{average}}$

A test of *CPT* invariance.

VALUE	*DOCUMENT ID*		*TECN*	*COMMENT*
0.044±0.085	BADIER	67	HBC	2.4 GeV/c $\overline{p}p$

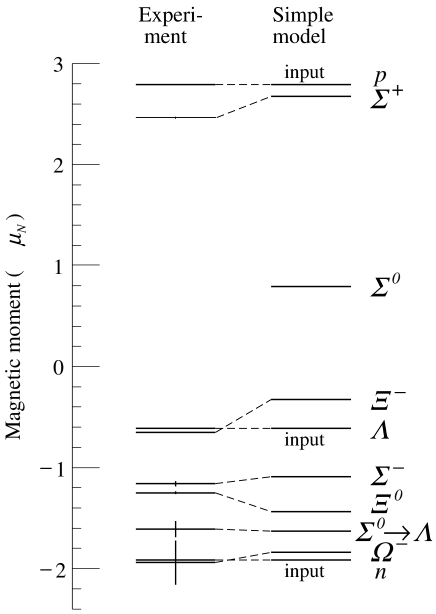
NOTE ON BARYON MAGNETIC MOMENTS

The figure shows the measured magnetic moments of the stable baryons. It also shows the predictions of the simplest quark model, using the measured p, n, and Λ moments as input. In this model, the moments are [1]

$$\mu_p = (4\mu_u - \mu_d)/3 \qquad \mu_n = (4\mu_d - \mu_u)/3$$
$$\mu_{\Sigma^+} = (4\mu_u - \mu_s)/3 \qquad \mu_{\Sigma^-} = (4\mu_d - \mu_s)/3$$
$$\mu_{\Xi^0} = (4\mu_s - \mu_u)/3 \qquad \mu_{\Xi^-} = (4\mu_s - \mu_d)/3$$
$$\mu_\Lambda = \mu_s \qquad \mu_{\Sigma^0} = (2\mu_u + 2\mu_d - \mu_s)/3$$
$$\mu_{\Omega^-} = 3\mu_s$$

and the $\Sigma^0 \to \Lambda$ transition moment is

$$\mu_{\Sigma^0\Lambda} = (\mu_d - \mu_u)/\sqrt{3}\ .$$



The quark moments that result from this model are $\mu_u = +1.852\,\mu_N$, $\mu_d = -0.972\,\mu_N$, and $\mu_s = -0.613\,\mu_N$. The corresponding effective quark masses, taking the quarks to be Dirac point particles, where $\mu = q\hbar/2m$, are 338, 322, and 510 MeV. As the figure shows, the model gives a good first approximation to the experimental moments. For efforts to make a better model, we refer to the literature [2].

References

1. See, for example, D.H. Perkins, *Introduction to High Energy Physics* (Addison-Wesley, Reading, MA, 1987), or D. Griffiths, *Introduction to Elementary Particles* (Harper & Row, New York, 1987).
2. See, for example, J. Franklin, Phys. Rev. **D29**, 2648 (1984); H.J. Lipkin, Nucl. Phys. **B241**, 477 (1984);
   K. Suzuki, H. Kumagai, and Y. Tanaka, Europhys. Lett. **2**, 109 (1986);
   S.K. Gupta and S.B. Khadkikar, Phys. Rev. **D36**, 307 (1987);
   M.I. Krivoruchenko, Sov. J. Nucl. Phys. **45**, 109 (1987);
   L. Brekke and J.L. Rosner, Comm. Nucl. Part. Phys. **18**, 83 (1988);
   K.-T. Chao, Phys. Rev. **D41**, 920 (1990) and references cited therein Also, see references cited in discussions of results in the experimental papers..

Λ MAGNETIC MOMENT

See the Note on Baryon Magnetic Moments above. Measurements with an error $\geq 0.15\ \mu_N$ have been omitted.

VALUE (μ_N)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
−0.613 ±0.004 OUR AVERAGE					
−0.606 ±0.015	200k	COX	81	SPEC	
−0.6138±0.0047	3M	SCHACHIN...	78	SPEC	
−0.59 ±0.07	350k	HELLER	77	SPEC	
−0.57 ±0.05	1.2M	BUNCE	76	SPEC	
−0.66 ±0.07	1300	DAHL-JENSEN	71	EMUL	200 kG field

Λ ELECTRIC DIPOLE MOMENT

A nonzero value is forbidden by both *T* invariance and *P* invariance.

VALUE (10^{-16} *e*cm)	*CL%*	*DOCUMENT ID*		*TECN*
< 1.5	95	[4] PONDROM	81	SPEC
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<100	95	[5] BARONI	71	EMUL
<500	95	GIBSON	66	EMUL

[4] PONDROM 81 measures $(-3.0 \pm 7.4) \times 10^{-17}$ *e*-cm.
[5] BARONI 71 measures $(-5.9 \pm 2.9) \times 10^{-15}$ *e*-cm.

Λ DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$p\pi^-$	(63.9 ±0.5) %
Γ_2	$n\pi^0$	(35.8 ±0.5) %
Γ_3	$n\gamma$	(1.75±0.15) × 10^{-3}
Γ_4	$p\pi^-\gamma$	[a] (8.4 ±1.4) × 10^{-4}
Γ_5	$pe^-\overline{\nu}_e$	(8.32±0.14) × 10^{-4}
Γ_6	$p\mu^-\overline{\nu}_\mu$	(1.57±0.35) × 10^{-4}

[a] See the Full Listings below for the pion momentum range used in this measurement.