| $\Xi^0$ | $I(J^P) = \frac{1}{2}(\frac{1}{2}^+)$ Status: ✳✳✳✳ |
|---|---|

The parity has not actually been measured, but $+$ is of course expected.

## $\Xi^0$ MASS

The fit uses the $\Xi^0$, $\Xi^-$, and $\overline{\Xi}^+$ mass and mass difference measurements.

| VALUE (MeV) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **1314.83±0.20 OUR FIT** | | | | | |
| **1314.82±0.20 OUR AVERAGE** | | | | | |
| 1314.82±0.06±0.20 | 3120 | FANTI | 00 | NA48 | $p$ Be, 450 GeV |
| 1315.2 ±0.92 | 49 | WILQUET | 72 | HLBC | |
| 1313.4 ±1.8 | 1 | PALMER | 68 | HBC | |

## $m_{\Xi^-} - m_{\Xi^0}$

The fit uses the $\Xi^0$, $\Xi^-$, and $\overline{\Xi}^+$ mass and mass difference measurements.

| VALUE (MeV) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **6.48±0.24 OUR FIT** | | | | | |
| **6.3 ±0.7 OUR AVERAGE** | | | | | |
| 6.9 ±2.2 | 29 | LONDON | 66 | HBC | |
| 6.1 ±0.9 | 88 | PJERROU | 65B | HBC | |
| 6.8 ±1.6 | 23 | JAUNEAU | 63 | FBC | |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| 6.1 ±1.6 | 45 | CARMONY | 64B | HBC | See PJERROU 65B |

## $\Xi^0$ MEAN LIFE

| VALUE ($10^{-10}$ s) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **2.90±0.09 OUR AVERAGE** | | | | | |
| 2.83±0.16 | 6300 | [1] ZECH | 77 | SPEC | Neutral hyperon beam |
| $2.88^{+0.21}_{-0.19}$ | 652 | BALTAY | 74 | HBC | 1.75 GeV/$c$ $K^- p$ |
| $2.90^{+0.32}_{-0.27}$ | 157 | [2] MAYEUR | 72 | HLBC | 2.1 GeV/$c$ $K^-$ |
| $3.07^{+0.22}_{-0.20}$ | 340 | DAUBER | 69 | HBC | |
| 3.0 ±0.5 | 80 | PJERROU | 65B | HBC | |
| $2.5^{+0.4}_{-0.3}$ | 101 | HUBBARD | 64 | HBC | |
| $3.9^{+1.4}_{-0.8}$ | 24 | JAUNEAU | 63 | FBC | |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| $3.5^{+1.0}_{-0.8}$ | 45 | CARMONY | 64B | HBC | See PJERROU 65B |

[1] The ZECH 77 result is $\tau_{\Xi^0} = [2.77-(\tau_\Lambda-2.69)] \times 10^{-10}$ s, in which we use $\tau_\Lambda = 2.63 \times 10^{-10}$ s.

[2] The MAYEUR 72 value is modified by the erratum.

## $\Xi^0$ MAGNETIC MOMENT

See the "Note on Baryon Magnetic Moments" in the $\Lambda$ Listings.

| VALUE ($\mu_N$) | EVTS | DOCUMENT ID | | TECN |
|---|---|---|---|---|
| **−1.250±0.014 OUR AVERAGE** | | | | |
| −1.253±0.014 | 270k | COX | 81 | SPEC |
| −1.20 ±0.06 | 42k | BUNCE | 79 | SPEC |

## $\Xi^0$ DECAY MODES

| | Mode | Fraction ($\Gamma_i/\Gamma$) | Scale factor/ Confidence level |
|---|---|---|---|
| $\Gamma_1$ | $\Lambda\pi^0$ | $(99.522\pm0.032)$ % | S=1.7 |
| $\Gamma_2$ | $\Lambda\gamma$ | $( 1.18 \pm0.30 ) \times 10^{-3}$ | S=2.0 |
| $\Gamma_3$ | $\Sigma^0\gamma$ | $( 3.33 \pm0.10 ) \times 10^{-3}$ | |
| $\Gamma_4$ | $\Sigma^+ e^- \overline{\nu}_e$ | $( 2.7 \pm0.4 ) \times 10^{-4}$ | |
| $\Gamma_5$ | $\Sigma^+ \mu^- \overline{\nu}_\mu$ | $< 1.1 \times 10^{-3}$ | CL=90% |

### $\Delta S = \Delta Q$ ($SQ$) violating modes or $\Delta S = 2$ forbidden ($S2$) modes

| | Mode | | Fraction ($\Gamma_i/\Gamma$) | | Confidence level |
|---|---|---|---|---|---|
| $\Gamma_6$ | $\Sigma^- e^+ \nu_e$ | SQ | < 9 | $\times 10^{-4}$ | CL=90% |
| $\Gamma_7$ | $\Sigma^- \mu^+ \nu_\mu$ | SQ | < 9 | $\times 10^{-4}$ | CL=90% |
| $\Gamma_8$ | $p\pi^-$ | S2 | < 4 | $\times 10^{-5}$ | CL=90% |
| $\Gamma_9$ | $p e^- \overline{\nu}_e$ | S2 | < 1.3 | $\times 10^{-3}$ | |
| $\Gamma_{10}$ | $p \mu^- \overline{\nu}_\mu$ | S2 | < 1.3 | $\times 10^{-3}$ | |

## CONSTRAINED FIT INFORMATION

An overall fit to 3 branching ratios uses 6 measurements and one constraint to determine 4 parameters. The overall fit has a $\chi^2 = 4.4$ for 3 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients $\left\langle \delta x_i \delta x_j \right\rangle / (\delta x_i \cdot \delta x_j)$, in percent, from the fit to the branching fractions, $x_i \equiv \Gamma_i/\Gamma_{total}$. The fit constrains the $x_i$ whose labels appear in this array to sum to one.

| | | | |
|---|---|---|---|
| $x_2$ | −94 | | |
| $x_3$ | −31 | −1 | |
| $x_4$ | −12 | 0 | 0 |
| | $x_1$ | $x_2$ | $x_3$ |

# $\Xi^0$ BRANCHING RATIOS

## $\Gamma(\Lambda\gamma)/\Gamma(\Lambda\pi^0)$ $\qquad\qquad$ $\Gamma_2/\Gamma_1$

| VALUE (units $10^{-3}$) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **1.19±0.30 OUR FIT** | Error includes scale factor of 2.0. | | | | |
| **1.19±0.30 OUR AVERAGE** | Error includes scale factor of 2.0. | | | | |
| 1.91±0.34±0.19 | 31 | [3] FANTI | 00 | NA48 | *p* Be, 450 GeV |
| 1.06±0.12±0.11 | 116 | JAMES | 90 | SPEC | FNAL hyperons |

[3] FANTI 00 used our 1998 value of 99.5% for the $\Xi^0 \to \Lambda\pi^0$ branching fraction to get $\Gamma(\Xi^0 \to \Lambda\gamma)/\Gamma_{total} = (1.90 \pm 0.34 \pm 0.19) \times 10^{-3}$. We adjust slightly to go back to what was directly measured.

## $\Gamma(\Sigma^0\gamma)/\Gamma(\Lambda\pi^0)$ $\qquad\qquad$ $\Gamma_3/\Gamma_1$

| VALUE (units $10^{-3}$) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **3.35±0.10 OUR FIT** | | | | | |
| **3.35±0.10 OUR AVERAGE** | | | | | |
| 3.34±0.05±0.09 | 4045 | ALAVI-HARATI01C | KTEV | *p* nucleus, 800 GeV |
| 3.16±0.76±0.32 | 17 | [4] FANTI | 00 | NA48 | *p* Be, 450 GeV |
| 3.56±0.42±0.10 | 85 | TEIGE | 89 | SPEC | FNAL hyperons |

[4] FANTI 00 used our 1998 value of 99.5% for the $\Xi^0 \to \Lambda\pi^0$ branching fraction to get $\Gamma(\Xi^0 \to \Sigma^0\gamma)/\Gamma_{total} = (3.14 \pm 0.76 \pm 0.32) \times 10^{-3}$. We adjust slightly to go back to what was directly measured.

## $\Gamma(\Sigma^+ e^- \overline{\nu}_e)/\Gamma_{total}$ $\qquad\qquad$ $\Gamma_4/\Gamma$

| VALUE (units $10^{-4}$) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **2.7 ±0.4 OUR FIT** | | | | | |
| **2.71±0.22±0.31** | 176 | AFFOLDER | 99 | KTEV | *p* nucleus 800 GeV |

## $\Gamma(\Sigma^+ \mu^- \overline{\nu}_\mu)/\Gamma(\Lambda\pi^0)$ $\qquad\qquad$ $\Gamma_5/\Gamma_1$

| VALUE (units $10^{-3}$) | CL% | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|---|
| **<1.1** | 90 | 0 | YEH | 74 | HBC | Effective denom.=2100 |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | | |
| <1.5 | | | DAUBER | 69 | HBC | |
| <7 | | | HUBBARD | 66 | HBC | |

## $\Gamma(\Sigma^- e^+ \nu_e)/\Gamma(\Lambda\pi^0)$ $\qquad\qquad$ $\Gamma_6/\Gamma_1$
Test of $\Delta S = \Delta Q$ rule.

| VALUE (units $10^{-3}$) | CL% | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|---|
| **<0.9** | 90 | 0 | YEH | 74 | HBC | Effective denom.=2500 |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | | |
| <1.5 | | | DAUBER | 69 | HBC | |
| <6 | | | HUBBARD | 66 | HBC | |

## $\Gamma(\Sigma^- \mu^+ \nu_\mu)/\Gamma(\Lambda\pi^0)$ $\qquad\qquad$ $\Gamma_7/\Gamma_1$
Test of $\Delta S = \Delta Q$ rule.

| VALUE (units $10^{-3}$) | CL% | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|---|
| **<0.9** | 90 | 0 | YEH | 74 | HBC | Effective denom.=2500 |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | | |
| <1.5 | | | DAUBER | 69 | HBC | |
| <6 | | | HUBBARD | 66 | HBC | |

## $\Gamma(p\pi^-)/\Gamma(\Lambda\pi^0)$ $\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ $\Gamma_8/\Gamma_1$

$\Delta S=2$. Forbidden in first-order weak interaction.

| VALUE (units $10^{-5}$) | CL% | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|---|
| **< 3.6** | 90 | | GEWENIGER | 75 | SPEC | |

• • • We do not use the following data for averages, fits, limits, etc. • • •

| | | | | | | |
|---|---|---|---|---|---|---|
| <180 | 90 | 0 | YEH | 74 | HBC | Effective denom.=1300 |
| < 90 | | | DAUBER | 69 | HBC | |
| <500 | | | HUBBARD | 66 | HBC | |

## $\Gamma(pe^-\overline{\nu}_e)/\Gamma(\Lambda\pi^0)$ $\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ $\Gamma_9/\Gamma_1$

$\Delta S=2$. Forbidden in first-order weak interaction.

| VALUE (units $10^{-3}$) | CL% | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|---|
| **<1.3** | | | DAUBER | 69 | HBC | |

• • • We do not use the following data for averages, fits, limits, etc. • • •

| | | | | | | |
|---|---|---|---|---|---|---|
| <3.4 | 90 | 0 | YEH | 74 | HBC | Effective denom.=670 |
| <6 | | | HUBBARD | 66 | HBC | |

## $\Gamma(p\mu^-\overline{\nu}_\mu)/\Gamma(\Lambda\pi^0)$ $\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ $\Gamma_{10}/\Gamma_1$

$\Delta S=2$. Forbidden in first-order weak interaction.

| VALUE (units $10^{-3}$) | CL% | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|---|
| **<1.3** | | | DAUBER | 69 | HBC | |

• • • We do not use the following data for averages, fits, limits, etc. • • •

| | | | | | | |
|---|---|---|---|---|---|---|
| <3.5 | 90 | 0 | YEH | 74 | HBC | Effective denom.=664 |
| <6 | | | HUBBARD | 66 | HBC | |

---

# $\Xi^0$ DECAY PARAMETERS

See the "Note on Baryon Decay Parameters" in the neutron Listings.

## $\alpha(\Xi^0)\,\alpha_-(\Lambda)$

| VALUE | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **−0.264±0.013 OUR AVERAGE** | | Error includes scale factor of 2.1. See the ideogram below. | | | |
| −0.260±0.004±0.005 | 300k | HANDLER | 82 | SPEC | FNAL hyperons |
| −0.317±0.027 | 6075 | BUNCE | 78 | SPEC | FNAL hyperons |
| −0.35 ±0.06 | 505 | BALTAY | 74 | HBC | $K^-p$ 1.75 GeV/$c$ |
| −0.28 ±0.06 | 739 | DAUBER | 69 | HBC | $K^-p$ 1.7–2.6 GeV/$c$ |

WEIGHTED AVERAGE
-0.264±0.013 (Error scaled by 2.1)



| | | | $\chi^2$ |
|---|---|---|---|
| HANDLER | 82 | SPEC | 0.4 |
| BUNCE | 78 | SPEC | 3.8 |
| BALTAY | 74 | HBC | 2.0 |
| DAUBER | 69 | HBC | 0.1 |
| | | | 6.4 |

(Confidence Level = 0.095)

-0.4    -0.35    -0.3    -0.25    -0.2    -0.15

$$\alpha(\Xi^0)\alpha_-(\Lambda)$$
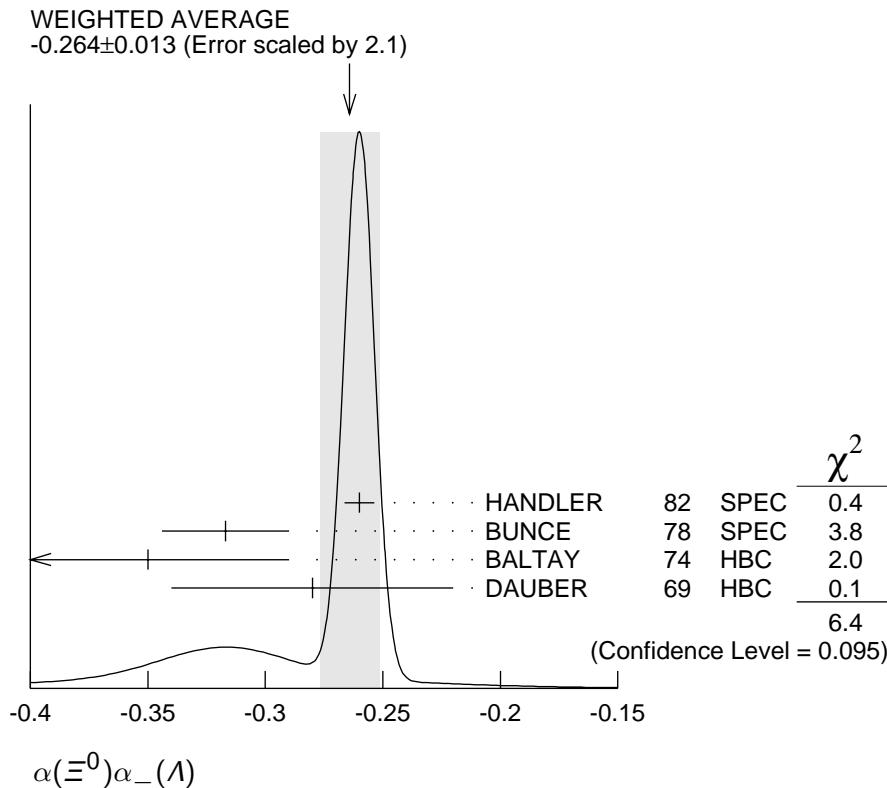
## $\alpha$ FOR $\Xi^0 \rightarrow \Lambda\pi^0$

The above average, $\alpha(\Xi^0)\alpha_-(\Lambda) = -0.264 \pm 0.013$, where the error includes a scale factor of 2.1, divided by our current average $\alpha_-(\Lambda) = 0.642 \pm 0.013$, gives the following value for $\alpha(\Xi^0)$.

| VALUE | DOCUMENT ID |
|---|---|
| **−0.411±0.022 OUR EVALUATION** | Error includes scale factor of 2.1. |

## $\phi$ ANGLE FOR $\Xi^0 \rightarrow \Lambda\pi^0$ ($\tan\phi = \beta/\gamma$)

| VALUE (°) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **21±12 OUR AVERAGE** | | | | | |
| 16±17 | 652 | BALTAY | 74 | HBC | 1.75 GeV/c $K^- p$ |
| 38±19 | 739 | [5] DAUBER | 69 | HBC | |
| − 8±30 | 146 | [6] BERGE | 66 | HBC | |

[5] DAUBER 69 uses $\alpha_\Lambda = 0.647 \pm 0.020$.

[6] The errors have been multiplied by 1.2 due to approximations used for the $\Xi$ polarization; see DAUBER 69 for a discussion.

---

# RADIATIVE HYPERON DECAYS

Written September 2003 by J.D. Jackson (LBNL).

The weak radiative decays of spin-1/2 hyperons, $B_i \rightarrow B_f\gamma$, yield information about matrix elements (form factors) similar to that gained from weak hadronic decays. For a polarized

spin-1/2 hyperon decaying radiatively via a $\Delta Q = 0$, $\Delta S = 1$ transition, the angular distribution of the direction $\hat{\mathbf{p}}$ of the final spin-1/2 baryon in the hyperon rest frame is

$$\frac{dN}{d\Omega} = \frac{N}{4\pi}\left(1 + \alpha_\gamma \, \mathbf{P}_i \cdot \hat{\mathbf{p}}\right) . \tag{1}$$

Here $\mathbf{P}_i$ is the polarization of the decaying hyperon, and $\alpha_\gamma$ is the asymmetry parameter. In terms of the form factors $F_1(q^2)$, $F_2(q^2)$, and $G(q^2)$ of the effective hadronic weak electromagnetic vertex,

$$F_1(q^2)\gamma_\lambda + iF_2(q^2)\sigma_{\lambda\mu}q^\mu + G(q^2)\gamma_\lambda\gamma_5 \, ,$$

$\alpha_\gamma$ is

$$\alpha_\gamma = \frac{2\,\text{Re}[G(0)F_M^*(0)]}{|G(0)|^2 + |F_M(0)|^2} \, , \tag{2}$$

where $F_M = (m_i - m_f)[F_2 - F_1/(m_i + m_f)]$. If the decaying hyperon is unpolarized, the decay baryon has a longitudinal polarization given by $P_f = -\alpha_\gamma$ [1].

The angular distribution for the weak hadronic decay, $B_i \rightarrow B_f \pi$, has the same form as Eq. (1), but of course with a different asymmetry parameter, $\alpha_\pi$. Now, however, if the decaying hyperon is unpolarized, the decay baryon has a longitudinal polarization given by $P_f = +\alpha_\pi$ [2,3]. The difference of sign is because the spins of the pion and photon are different.

**$\Xi^0 \rightarrow \Lambda\gamma$ decay**—The radiative decay $\Xi^0 \rightarrow \Lambda\gamma$ of an unpolarized $\Xi^0$ uses the hadronic decay $\Lambda \rightarrow p\pi^-$ as the analyzer. As noted above, the longitudinal polarization of the $\Lambda$ will be $P_\Lambda = -\alpha_{\Xi\Lambda\gamma}$. Let $\alpha_-$ be the $\Lambda \rightarrow p\pi^-$ asymmetry parameter and $\theta_{\Lambda p}$ be the angle, as seen in the $\Lambda$ rest frame, between the $\Lambda$ line of flight and the proton momentum. Then

the hadronic version of Eq. (1) applied to the $\Lambda \to p\pi^-$ decay gives

$$\frac{dN}{d\cos\theta_{\Lambda p}} = \frac{N}{2}\left(1 - \alpha_{\Xi\Lambda\gamma}\,\alpha_-\cos\theta_{\Lambda p}\right) \qquad (3)$$

for the angular distribution of the proton in the $\Lambda$ frame. The only published measurement of $\alpha_{\Xi\Lambda\gamma}$ [4] got the sign wrong, as explained in an erratum 12 years later [5]. The corrected result is $\alpha_{\Xi\Lambda\gamma} = -0.43 \pm 0.44$.

**$\Xi^0 \to \Sigma^0\gamma$ decay**—The asymmetry parameter here, $\alpha_{\Xi\Sigma\gamma}$, is measured by following the decay chain $\Xi^0 \to \Sigma^0\gamma$, $\Sigma^0 \to \Lambda\gamma$, $\Lambda \to p\pi^-$. Again, for an unpolarized $\Xi^0$, the longitudinal polarization of the $\Sigma^0$ will be $P_\Sigma = -\alpha_{\Xi\Sigma\gamma}$. In the $\Sigma^0 \to \Lambda\gamma$ decay, a parity-conserving magnetic-dipole transition, the polarization of the $\Sigma^0$ is transferred to the $\Lambda$, as may be seen as follows. Let $\theta_{\Sigma\Lambda}$ be the angle seen in the $\Sigma^0$ rest frame between the $\Sigma^0$ line of flight and the $\Lambda$ momentum. For $\Sigma^0$ helicity $+1/2$, the probability amplitudes for positive and negative spin states of the $\Sigma^0$ *along the $\Lambda$ momentum* are $\cos(\theta_{\Sigma\Lambda}/2)$ and $\sin(\theta_{\Sigma\Lambda}/2)$. Then the amplitude for a negative helicity photon and a negative helicity $\Lambda$ is $\cos(\theta_{\Sigma\Lambda}/2)$, while the amplitude for positive helicities for the photon and $\Lambda$ is $\sin(\theta_{\Sigma\Lambda}/2)$. For $\Sigma^0$ helicity $-1/2$, the amplitudes are interchanged. If the $\Sigma^0$ has longitudinal polarization $P_\Sigma$, the probabilities for $\Lambda$ helicities $\pm 1/2$ are therefore

$$p(\pm 1/2) = \frac{1}{2}(1\mp P_\Sigma)\cos^2(\theta_{\Sigma\Lambda}/2) + \frac{1}{2}(1\pm P_\Sigma)\sin^2(\theta_{\Sigma\Lambda}/2)\,, \quad (4)$$

and the longitudinal polarization of the $\Lambda$ is

$$P_\Lambda = -P_\Sigma\cos\theta_{\Sigma\Lambda} = +\alpha_{\Xi\Sigma\gamma}\cos\theta_{\Sigma\Lambda}\,. \qquad (5)$$

Using Eq. (1) for the $\Lambda \to p\pi^-$ decay again, we get for the joint angular distribution of the $\Sigma^0 \to \Lambda\gamma$, $\Lambda \to p\pi^-$ chain,

$$\frac{d^2N}{d\cos\theta_{\Sigma\Lambda}\,d\cos\theta_{\Lambda p}} = \frac{N}{4}\left(1 + \alpha_{\Xi\Sigma\gamma}\cos\theta_{\Sigma\Lambda}\,\alpha_-\cos\theta_{\Lambda p}\right). \quad (6)$$

The KTeV collaboration recently measured $\alpha_{\Xi\Sigma\gamma}$ to be $-0.63\pm 0.09$ [6]. The only other measurement has been withdrawn [7].

## References

1. R.E. Behrends, Phys. Rev. **111**, 1691 (1958); see Eq. (7) or (8).
2. In ancient times, the signs of the asymmetry term in the angular distributions of radiative and hadronic decays of polarized hyperons were sometimes opposite. For roughly 40 years, however, the overwhelming convention has been to make them the same. The aim, not always achieved, is to remove ambiguities.
3. For the definition of $\alpha_\pi$, see the note on "Baryon Decay Parameters," in the Neutron Listings in this *Review.*.
4. C. James *et al.*, Phys. Rev. Lett. **64**, 843 (1990).
5. C. James *et al.*, Phys. Rev. Lett. **89**, 169901 (2002) (erratum). The various sign conventions spelled out here are discussed.
6. A. Alavi-Harati *et al.*, Phys. Rev. Lett. **86**, 3239 (2001).
7. S. Teige *et al.*, Phys. Rev. Lett. **63**, 2717 (1989); erratum, Phys. Rev. Lett. **89**, 169902 (2002).

### $\alpha$ FOR $\Xi^0 \to \Lambda\gamma$

See the note above on "Radiative Hyperon Decays."

| VALUE | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| $-0.43\pm 0.44$ | 87 | [7] JAMES | 90 | SPEC | FNAL hyperons |

[7] The sign has been changed; see the erratum (JAMES 02, under JAMES 90). ▌

### $\alpha$ FOR $\Xi^0 \to \Sigma^0\gamma$

See the note above on "Radiative Hyperon Decays."

| VALUE | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| $-0.63\pm 0.08\pm 0.05$ | 4045 | ALAVI-HARATI01C | | KTEV | *p* nucleus, 800 GeV |

• • • We do not use the following data for averages, fits, limits, etc. • • •

| VALUE | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| $+0.20\pm 0.32\pm 0.05$ | 85 | [8] TEIGE | 89 | SPEC | FNAL hyperons |

[8] This result has been withdrawn, due to an error. See the erratum (TEIGE 02, under ▌ TEIGE 89).

## $g_1(0)/f_1(0)$ FOR $\Xi^0 \rightarrow \Sigma^+ e^- \overline{\nu}_e$

| VALUE | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|---|---|---|---|
| $+1.32^{+0.21}_{-0.17}\pm0.05$ | 487 | [9] ALAVI-HARATI01I | KTEV | $p$ nucleus, 800 GeV |

[9] ALAVI-HARATI 01I assumes here that the second-class current is zero and that the weak-magnetism term takes its exact SU(3) value.

## $g_2(0)/f_1(0))$ FOR $\Xi^0 \rightarrow \Sigma^+ e^- \overline{\nu}_e$

| VALUE | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|---|---|---|---|
| $-1.7^{+2.1}_{-2.0}\pm0.5$ | 487 | [10] ALAVI-HARATI01I | KTEV | $p$ nucleus, 800 GeV |

[10] ALAVI-HARATI 01I thus assumes that $g_2 = 0$ in calculating $g_1/f_1$, above.

## $f_2(0)/f_1(0)$ FOR $\Xi^0 \rightarrow \Sigma^+ e^- \overline{\nu}_e$

| VALUE | EVTS | DOCUMENT ID | TECN | COMMENT |
|---|---|---|---|---|
| $2.0\pm1.2\pm0.5$ | 487 | ALAVI-HARATI01I | KTEV | $p$ nucleus, 800 GeV |

## $\Xi^0$ REFERENCES

| | | | | |
|---|---|---|---|---|
| JAMES | 02 | PRL 89 169901 (erratum) | C. James *et al.* | (MINN, MICH, WISC, RUTG) |
| TEIGE | 02 | PRL 89 169902 (erratum) | S. Teige *et al.* | (RUTG, MICH, MINN) |
| ALAVI-HARATI | 01C | PRL 86 3239 | A. Alavi-Harati *et al.* | (FNAL KTeV Collab.) |
| ALAVI-HARATI | 01I | PRL 87 132001 | A. Alavi-Harati *et al.* | (FNAL KTeV Collab.) |
| FANTI | 00 | EPJ C12 69 | V. Fanti *et al.* | (CERN NA48 Collab.) |
| AFFOLDER | 99 | PRL 82 3751 | A. Affolder *et al.* | (FNAL KTeV Collab.) |
| JAMES | 90 | PRL 64 843 | C. James *et al.* | (MINN, MICH, WISC, RUTG) |
| Also | 02 | PRL 89 169901 (erratum) | C. James *et al.* | (MINN, MICH, WISC, RUTG) |
| TEIGE | 89 | PRL 63 2717 | S. Teige *et al.* | (RUTG, MICH, MINN) |
| Also | 02 | PRL 89 169902 (erratum) | S. Teige *et al.* | (RUTG, MICH, MINN) |
| HANDLER | 82 | PR D25 639 | R. Handler *et al.* | (WISC, MICH, MINN+) |
| COX | 81 | PRL 46 877 | P.T. Cox *et al.* | (MICH, WISC, RUTG, MINN+) |
| BUNCE | 79 | PL 86B 386 | G.R.M. Bunce *et al.* | (BNL, MICH, RUTG+) |
| BUNCE | 78 | PR D18 633 | G.R.M. Bunce *et al.* | (WISC, MICH, RUTG) |
| ZECH | 77 | NP B124 413 | G. Zech *et al.* | (SIEG, CERN, DORT, HEIDH) |
| GEWENIGER | 75 | PL 57B 193 | C. Geweniger *et al.* | (CERN, HEIDH) |
| BALTAY | 74 | PR D9 49 | C. Baltay *et al.* | (COLU, BING) J |
| YEH | 74 | PR D10 3545 | N. Yeh *et al.* | (BING, COLU) |
| MAYEUR | 72 | NP B47 333 | C. Mayeur *et al.* | (BRUX, CERN, TUFTS, LOUC) |
| Also | 73 | NP B53 268 erratum | C. Mayeur | |
| WILQUET | 72 | PL 42B 372 | G. Wilquet *et al.* | (BRUX, CERN, TUFTS+) |
| DAUBER | 69 | PR 179 1262 | P.M. Dauber *et al.* | (LRL) |
| PALMER | 68 | PL 26B 323 | R.B. Palmer *et al.* | (BNL, SYRA) |
| BERGE | 66 | PR 147 945 | J.P. Berge *et al.* | (LRL) |
| HUBBARD | 66 | Thesis UCRL 11510 | J.R. Hubbard | (LRL) |
| LONDON | 66 | PR 143 1034 | G.W. London *et al.* | (BNL, SYRA) |
| PJERROU | 65B | PRL 14 275 | G.M. Pjerrou *et al.* | (UCLA) |
| Also | 65 | Thesis | G.M. Pjerrou | (UCLA) |
| CARMONY | 64B | PRL 12 482 | D.D. Carmony *et al.* | (UCLA) |
| HUBBARD | 64 | PR 135B 183 | J.R. Hubbard *et al.* | (LRL) |
| JAUNEAU | 63 | PL 4 49 | L. Jauneau *et al.* | (EPOL, CERN, LOUC+) |
| Also | 63C | Siena Conf. 1 1 | L. Jauneau *et al.* | (EPOL, CERN, LOUC+) |