

# Ω BARYONS ( $S = -3, I = 0$ )

$$\Omega^- = sss$$

**Ω<sup>-</sup>**

$$I(J^P) = 0(\frac{3}{2}^+)$$

$J^P$  is not yet measured;  $\frac{3}{2}^+$  is the quark model prediction.

$$\text{Mass } m = 1672.45 \pm 0.29 \text{ MeV}$$

$$(m_{\Omega^-} - m_{\bar{\Omega}^+}) / m_{\Omega^-} = (-1 \pm 8) \times 10^{-5}$$

$$\text{Mean life } \tau = (0.821 \pm 0.011) \times 10^{-10} \text{ s}$$

$$c\tau = 2.461 \text{ cm}$$

$$(\tau_{\Omega^-} - \tau_{\bar{\Omega}^+}) / \tau_{\Omega^-} = -0.002 \pm 0.040$$

$$\text{Magnetic moment } \mu = -2.02 \pm 0.05 \mu_N$$

### Decay parameters

$$\Lambda K^- \quad \alpha = -0.026 \pm 0.023$$

$$\frac{1}{2}[\alpha(\Lambda K^-) + \alpha(\bar{\Lambda} K^+)] = -0.004 \pm 0.040$$

$$\Xi^0 \pi^- \quad \alpha = 0.09 \pm 0.14$$

$$\Xi^- \pi^0 \quad \alpha = 0.05 \pm 0.21$$

<b>Ω<sup>-</sup> DECAY MODES</b>	Fraction ( $\Gamma_i/\Gamma$ )	Confidence level	$\rho$ (MeV/c)
$\Lambda K^-$	(67.8±0.7) %		211
$\Xi^0 \pi^-$	(23.6±0.7) %		294
$\Xi^- \pi^0$	( 8.6±0.4) %		290
$\Xi^- \pi^+ \pi^-$	( 4.3 <sup>+3.4</sup> <sub>-1.3</sub> ) × 10 <sup>-4</sup>		190
$\Xi(1530)^0 \pi^-$	( 6.4 <sup>+5.1</sup> <sub>-2.0</sub> ) × 10 <sup>-4</sup>		17
$\Xi^0 e^- \bar{\nu}_e$	( 5.6±2.8) × 10 <sup>-3</sup>		319
$\Xi^- \gamma$	< 4.6 × 10 <sup>-4</sup>	90%	314
<b>ΔS = 2 forbidden (S2) modes</b>			
$\Lambda \pi^-$	S2 < 1.9 × 10 <sup>-4</sup>	90%	449

**$\Omega(2250)^-$**

$$I(J^P) = 0(?^?)$$

Mass  $m = 2252 \pm 9$  MeV

Full width  $\Gamma = 55 \pm 18$  MeV

$\Omega(2250)^-$ DECAY MODES	Fraction ( $\Gamma_i/\Gamma$ )	$p$ (MeV/c)
$\Xi^- \pi^+ K^-$	seen	532
$\Xi(1530)^0 K^-$	seen	437