

# Right answer: pion perspective

$$g = \frac{E_p}{m_p} = \frac{140 \text{ GeV}}{140 \text{ MeV}} = 1000$$



Pion sees: Lorentz Contraction

$$L_p = \frac{L}{g} = \frac{780 \text{ m}}{1000} = 0.78 \text{ m}$$

$$t_p = \frac{L_p}{c} = 2.6 \times 10^{-7} \text{ sec}$$

$$t = 2.6 \times 10^{-8}$$

$$\frac{t_p}{t} = 0.1 \text{ so}$$

**Right!!!**

$$\text{fraction left} = e^{-0.1} = 0.90$$