

# Pion probability

$$P(\pi|1) = \frac{P(1|\pi) \cdot P(\pi)}{P(1)}$$

$$P(1) = 1 \cdot \epsilon + (\sigma_\mu/\sigma_\pi) \cdot (1 - \epsilon)$$

$$\epsilon = \exp(-L/\gamma\beta c\tau), L = 800\text{cm}, c\tau = 780\text{cm}$$

$$\epsilon = 1 - \alpha(1 - \epsilon)$$

$$P(\pi|2) = \frac{P(2|\pi) \cdot P(\pi|1)}{P(2)}$$

$$P(2) = P(\pi|1) \cdot \epsilon + (1 - P(\pi|1)) \cdot (1 - \epsilon)$$

