Contribution ID: **2** Type: **Poster**

The ratio of γ/π^0 production rates in neutrino-nucleus interactions at the Δ resonance mass region.

Monday 1 September 2025 17:30 (20 minutes)

We study the dependence of neutrino-induced γ/π^0 production ($\overset{(-)}{\nu_\mu} + A \rightarrow \overset{(-)}{\nu_\mu}(\mu) + \gamma/\pi^0 + X$) on the target nucleus A, at the Δ resonance mass region.
We predict the ratio of the γ/π^0 production rates in NC and CC interactions and for ν_μ and $\bar{\nu}_\mu$ beams:
- **Argon target**: $\sim$3.1\% (NC/CC $\nu_\mu/\bar{\nu}_\mu$)
- **Water target**: $\sim$1.9\% (NC), $\sim$2.3\% (CC ν_μ), $\sim$1.7\% (CC $\bar{\nu}_\mu$)
- **Liquid Scintillator target**: $\sim$1.7\% (NC), $\sim$2.1\% (CC ν_μ), $\sim$1.6\% (CC $\bar{\nu}_\mu$)

We also discuss solving the MiniBooNE anomaly by looking at the CC single photon and single neutral pion production rates at the SBN program experiments at Fermilab.

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