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Nuclear Effects in Hyperon Production

We study the Cabibbo suppressed production of hyperons (Λ and Σ baryons) in the interactions of antineutrinos and nuclei. This is a rare process and few measurements have been made, resulting in a poorly constrained cross section model, but upcoming experiments such as SBND [1] and DUNE are expected to obtain significantly greater statistics. In this poster we explore the influence of nuclear effects on this process, using the NuWro Monte Carlo generator: Hyperons undergo secondary interactions with the daughter nucleus, modifying the strengths of the different channels and their kinematics. They are unique nuclear probes as they are not subject to Pauli blocking, and thus may reinteract at low energies. We also include a hyperon-nucleus potential that alters the kinematics used in secondary interactions, and discuss its predicted effects on different observables.

[1] J. Phys. Conf. Ser.888, 012186(2017).

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