

Cyclotron Colloquium, Tuesday, February 9, at 3:45 pm

"Neutrino-Long-Baseline Experiments -- where Nuclear Physics is needed"

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Abstract:

Long baseline experiments with neutrinos require a precise knowledge of the incoming neutrino beam properties (energy and flux) as well as a detailed understanding of neutrino-nucleus interactions. In this talk I will discuss a nuclear-physics based simulation of such events on the basis of the Boltzmann-Uehling-Uhlenbeck equation. I will first demonstrate the successes and limitations of the GiBUU implementation for photonuclear reactions which test the vector domain of the electroweak interaction. I will then illustrate how nuclear rescattering and nuclear structure information can affect the measured quasielastic events in the energy regime of a few 100 MeV to 1.5 GeV neutrino energy.