Contribution ID: 42

Type: Working Group Sessions

Neutrino Interactions with Nuclei and Long-Baseline Experiments

The extraction of neutrino mixing parameters and the CP-violating phase requires knowledge of the neutrino energy. This energy must be reconstructed from the final state of a neutrino-nucleus reaction since all long-baseline experiments use nuclear targets. This reconstruction requires detailed knowledge of the neutrino reactions with bound nucleons and of the final state interactions of hadrons with the nuclear environment. Quantum-kinetic transport theory has been used to build the event generator GiBUU for this reconstruction that takes basic nuclear properties, such as binding, into account. Results obtained both for electron-nucleus and neutrino-nucleus reactions will be discussed. Some examples will also be discussed that show the effects of nuclear interactions on observables in long-baseline experiments.

Primary author: Prof. MOSEL, Ulrich (Universitaet Giessen) Presenter: Prof. MOSEL, Ulrich (Universitaet Giessen)

Track Classification: Neutrino Physics Working Group