

Neutrino Lead interactions: Towards an FSI model benchmark

Monday, 8 July 2024 09:30 (15 minutes)

When neutrinos interact with protons and neutrons in an atomic nucleus, the resulting particles can bounce around within the nucleus in a process known as Final State Interactions (FSI). However, our current models of these interactions sometimes don't match well with experimental data, especially for heavier nuclei. The MINERvA experiment allows us to study these interactions in detail. It uses five different types of nuclear targets and includes an electromagnetic calorimeter (ECAL) at the back of the detector. The ECAL is made of thin layers of lead and plastic, with about 4 tons of lead in total. This setup allows us to collect large data samples of neutrinos interactions with lead. By analyzing this data, we aim to improve our understanding of how neutrinos interact with heavy nuclei and improve our FSI modeling. This talk will discuss the details of the comparison of the models to the experimental data, using the MINERvA experiment to improve our techniques and to ensure our models are consistent with the latest experimental results.

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Session Classification: MINERvA