

Recent Progress in Low-Energy Neutrino-Nucleus Interactions Physics

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Tens of MeV neutrinos, such as those from stopped pion or core-collapse supernova sources, interact with target nuclei in detectors through either coherent elastic or inelastic scattering processes. These interactions provide valuable insights into various Standard Model and Beyond the Standard Model phenomena, with significant implications for nuclear physics, particle physics, and astrophysics. The precision of coherent elastic scattering, where the nucleus remains in its ground state, depends on the accuracy of the underlying weak form factor of the nucleus. In contrast, inelastic scattering, where neutrinos excite the target nucleus to low-lying nuclear states, involves complex nuclear structures and dynamics and are quite poorly constrained. Moreover, these low-energy processes also have implications for neutrino-nucleus scattering of GeV energy neutrino beams. In this talk, I will present an overview of the field, highlight recent advancements, and outline future directions.

Working Group

WG 2: Neutrino Scattering Physics

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