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Low-energy neutrino-nucleus interactions

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Tens of MeV neutrinos, e.g. from the stopped pion or core-collapse supernova sources, scatter off the target nucleus in the detector either via a coherent elastic or the inelastic process and allow the study of a variety of SM and BSM processes. The precision of the coherent elastic process, where the scattered nucleus remains in its ground state, is limited by the precision with which the underlying weak form factor of the nucleus is known. In the inelastic scattering, neutrino excites the target nucleus to low-lying nuclear states and is subject to more detailed underlying nuclear structure and dynamics, and is therefore quite poorly understood. This talk will cover neutrino-nucleus interaction in the tens of MeV region, constraining those are vital in disentangling beyond the Standard Model physics signals from the SM signals in neutrino experiments.

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