τ2023

Contribution ID: **70**   Type: **Plenary Presentation**

Neutrino-nuclear interactions, beyond-standard-model physics, and accelerator-produced dark matter

Thursday 7 December 2023 09:30 (25 minutes)

Neutrino-nuclear interactions have been crucial from the discovery of neutrinos through the flagship neutrino oscillation experiments of today. At low energy, knowledge of weak form factors and nuclear structure are intertwined with ongoing studies of coherent elastic neutrino-nucleus scattering, and for the detection of supernova neutrinos. For high energy neutrino sources, deep inelastic scattering and the hadronization of target nuclei shape complex event topologies in detectors. Further, accelerator neutrino sources offer fertile ground for beyond-standard-model physics such as searches for accelerator-produced dark matter. In this talk, I provide a brief overview of experiments which can both benefit from and contribute to our knowledge of neutrino-nuclear interactions, and survey searches for accelerator-produced dark matter and other BSM signatures at accelerator-based neutrino sources.

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Session Classification: Thursday morning