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Accelerator-based Neutrino Physics: A Theoretical Perspective

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With the planned DUNE, Hyper-Kamiokande, and JUNO detectors, as well as numerous smaller experiments, accelerator-based neutrino physics has become one of the flagship disciplines of fundamental physics. In this talk, we will highlight recent developments and future prospects in neutrino oscillation physics, discussing precision measurements within the Standard Model of particle physics as well as searches for new particles and interactions. We will also comment on the rich program of auxiliary analyses facilitated by current and future accelerator-based neutrino experiments, including searches for light "dark sectors" and precision studies of neutrino–nucleus interactions.