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Radiative corrections in neutrino physics

Thursday, July 6, 2023 3:00 PM (45 minutes)

In this talk, I will motivate and describe a few recent precise calculations of radiative corrections to neutrino oscillation and cross-section experiments. I will present elastic neutrino-electron, inverse muon decay cross sections, and neutrino energy spectra from radiative muon, pion, and kaon decays, with quantified uncertainties. I will formulate radiative corrections to charged-current elastic neutrino-nucleon scattering and validate the precise relation between electron and muon flavor cross sections for signal events in neutrino oscillation experiments. I will illustrate permille-to-percent level effects on (anti)neutrino- and electron-nucleus scattering cross sections due to the exchange of photons with a nuclear medium.

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