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Radiative corrections to charged-current neutrino scattering at GeV energies (remote)

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SCET is an extremely powerful tool for the evaluation of radiative corrections in neutrino experiments. I am going to highlight two recent advances: 1. Charged-current quasielastic scattering is the signal process in modern neutrino oscillation experiments. Exploiting effective field theory, we factorize neutrino-nucleon cross sections into soft, collinear, and hard contributions. We evaluate soft and collinear functions from QED and provide a model for the hard contribution with expected infrared and collinear behavior. We validate precise relation between electron and muon neutrino cross sections for the experimental setup of modern and future accelerator-based neutrino oscillation experiments. 2. Exchange of Glauber photons with nuclear medium modified neutrino and electron scattering cross sections by a percent level corrections. We evaluate these changes for typical energies of modern and future experimental facilities.

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