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Radiative corrections in neutrino scattering

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Neutrino physics is reaching a percent level precision and account for radiative corrections is a necessary step in modern and future accelerator-based experiments. We introduce and calculate radiative corrections in neutrino physics. Firstly, neutrino-electron scattering provides a clean tool to constrain the neutrino flux. We provide the most precise up-to-date prediction for neutrino-electron scattering cross sections quantifying errors for the first time to be of order $0.2 - 0.4$ %. Secondly, neutrino-nucleon charged-current quasielastic scattering is one of the signal processes, the best tool for neutrino energy reconstruction, studies of the internal nucleon structure, and flux determinations. We study form factors and radiative corrections to this process.

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