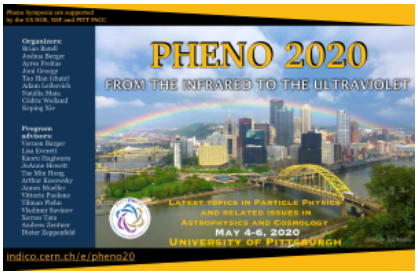

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Scalar and Tensor Neutrino Interactions

Monday 4 May 2020 14:45 (15 minutes)

We study the constraints on the General Neutrino Interactions (GNI) based on the framework of the Standard Model Effective Field Theory extended with right-handed neutrinos N (SMNEFT) from low-energy probes (neutrino scattering, nuclear beta decay, and meson decay), and high energy electron-proton and proton-proton colliders. We compute the one-loop anomalous dimensions of the low-energy effective Theory (LEFT) below the electroweak scale and SMNEFT above the electroweak scale. The tree-level matching between LEFT and SMNEFT is performed at the electroweak scale. Currently, the most stringent limit on scalar and tensor interactions arise from pseudoscalar meson decays and the LHC measurements, which are probing 10^{-3} level. In the future, the upcoming High-Luminosity LHC (HL-LHC) has the potential to reach 10^{-4} level and LHeC can play an important role with certain theoretical assumptions.

Summary

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