

Constraining New Physics with Neutrino-Electron Scattering

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Abstract

Neutrino-electron scatterings are purely leptonic processes with robust standard model (SM) predictions. Their measurements can therefore provide constraints to physics beyond SM. The electron type anti-neutrino scattering off electron data taken at the Kuo-Sheng Reactor Neutrino Laboratory [1] were used to probe few new physics scenarios. New constraints were placed on the NSI parameters for the non-universal and flavor-changing channels [2], as well as to the coupling constants for scalar and vector unparticles to the neutrinos and electrons [3]. Bounds were also derived on the scale parameter for Non-Commutative Physics using neutrino-electron scattering data with reactor and accelerator neutrinos [3].

[1]. M. Deniz et al., Phys. Rev. D 81, 072001 (2010).

[2]. M. Deniz et al., Phys. Rev. D 82, 033004 (2010).

[3]. S. Bilmis et al., Phys. Rev. D 85, 073011 (2012).

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