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Neutrinoless Double Beta Decay in Chiral Effective Field Theory

Thursday, 31 May 2018 17:10 (20 minutes)

Within the framework of chiral effective field theory I will discuss the leading contributions to the neutrinoless double-beta decay transition operator induced by light Majorana neutrinos. Based on renormalization arguments, I will argue that one needs to introduce a leading-order short-range operator, missing in all current calculations. I will then discuss strategies to determine the finite part of the short-range coupling by matching to lattice QCD or by relating it via chiral symmetry to isospin-breaking observables in the two-nucleon sector. Finally, I will estimate the impact of this new contribution on nuclear matrix elements of relevance to experiment.

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