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Constraining new physics with a positive or negative signal of neutrinoless double beta decay

samedi 23 juillet 2011 09:00 (15 minutes)

We investigate numerically how accurately one could constrain the strengths of different short-range contributions to neutrinoless double beta decay in effective field theory. Depending on the outcome of near-future experiments yielding information
on the neutrino masses, the corresponding bounds or estimates can be stronger or weaker. A particularly interesting case, resulting in strong bounds, would be a positive signal of neutrinoless double beta decay that is consistent with complementary information from neutrino oscillation experiments, kinematical determinations of the
neutrino mass, and measurements of the sum of light neutrino masses from cosmological observations. The keys to more robust bounds are improvements of the knowledge of the nuclear physics involved and a better experimental accuracy.

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