

Testing physics beyond the standard model in the study of weak interaction processes

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Weak interaction processes such as beta and double-beta decays provide a rich testing ground for physics beyond the Standard Model. In this talk, I review current investigations to obtain key insights about still unknown properties of neutrinos and possible violations of some fundamental symmetries in physics. In particular, I show how the precise calculation of phase space factors, electron spectra and their correlations and nuclear matrix elements are key ingredients for the much-needed theoretical support in beta, double-beta, and dark matter experiments.

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