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Exotic Double Beta Decay Mechanisms

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Neutrinoless double beta decay can significantly help to shed light on the issue of non-zero neutrino mass, as observation of this lepton number violating process would imply neutrinos are Majorana particles. However, the underlying interaction does not have to be as simple as the standard neutrino mass mechanism. The entire variety of neutrinoless double beta decay mechanisms can be approached effectively. In this talk I will focus on a theoretical description of short-range effective contributions to neutrinoless double beta decay, which are equivalent to 9-dimensional effective operators as well as a novel mode with a Majoron-like scalar particle emitted in the decay.

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