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Neutrinoless double beta decay and nuclear matrix elements

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Confirmation of neutrino oscillations in different experiments has established the massive character of neutrino and served as a strong evidence to look beyond the well-accepted standard model of particles. Most of the unified theories thus evolved are based on Majorana character of neutrinos. At present most promising and only experiment to settle the Majorana/Dirac nature of neutrino that is being pursued by different groups is the search for neutrinoless double beta decay. Apart from establishing Majorana character of neutrinos this experiment is also the most sensitive way to look for the neutrino mass. However, in the process of extraction of neutrino mass the nuclear transition matrix elements of nuclei involved in specific experiment and different theoretical models and approaches used for extraction of these matrix elements play crucial role in arriving at the the value of neutrino mass from neutrinoless double beta decay. Status of nuclear matrix elements calculations in general will be discussed and the connected uncertainties in particular shall also be reported.

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Classification de Session: Neutrino Physics

Classification de thématique: Theory