

Uncovering Multiple CP-Nonconserving Mechanisms of Neutrinoless Double Beta Decay

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We consider the possibility of several different mechanisms contributing to the Neutrinoless Double Beta Decay amplitude in the general case of CP nonconservation: light Majorana neutrino exchange, heavy left-handed (LH) and heavy right-handed (RH) Majorana neutrino exchanges, lepton charge non-conserving couplings in SUSY theories with R-parity breaking. If the Neutrinoless Double Beta Decay is induced by, e.g., two non-interfering mechanisms (light Majorana neutrino and heavy RH Majorana neutrino exchanges), one can determine the absolute values of the two fundamental parameters, characterising these mechanisms, from data on the half-lives of two nuclear isotopes.

In the case when twointerfering mechanisms are responsible for the Neutrinoless Double Beta Decay, the absolute values of the two relevant parameters and the interference term can be uniquely determined from data on the half-lives of three nuclei.

The method considered by us can be generalised to the case of more than two *betabeta*-decay mechanisms. It has also the advantage that it allows to treat the cases of CP conserving and CP nonconserving couplings generating the *betabeta*-decay in a unique way.

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