



Contribution ID: 46

Type: Afternoon Session

## Competing mechanisms of the $0\nu\beta\beta$ -decay mediated by light and heavy neutrinos within left-right symmetric models

*Friday, April 21, 2017 5:40 PM (15 minutes)*

The importance of the subject of the neutrinoless double-beta decay ( $0\nu\beta\beta$ -decay) is shortly maintained. The neutrino exchange mechanisms of the  $0\nu\beta\beta$ -decay in left-right symmetric seesaw models with right-handed gauge bosons at TeV scale are presented. The corresponding  $0\nu\beta\beta$ -decay nuclear matrix elements, which enter the decay rate, are calculated within the QRPA with isospin restoration and discussed. An impact of the quenching of the axial-vector coupling constant on double-beta decay processes is addressed. By assuming normal hierarchy of neutrino masses a qualitative comparison of the  $0\nu\beta\beta$ -decay lepton number violating parameters is performed. The angular correlations and the single electron energy distributions for various combinations of the total lepton number violating parameters that can help to disentangle the possible mechanism are described and discussed. Finally, a novel mechanism of the  $0\nu\beta\beta$ -decay associated with nuclear environment is presented.

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**Session Classification:** Friday Afternoon

**Track Classification:** Flavor Physics of Quarks and Leptons