Contribution ID : **109** Type : **not specified**

Lepton number violation in tau decays at Belle II

Abstract

The discovery that flavour mixing can occur in the neutrino sector proves that neutrinos have mass. Both the concept of massive neutrinos, and by extension the mechanisms which generate neutrino mass, are not predicted or explained by the SM. This tells us that the lepton sector is not fully understood. There are many NP models which introduce mechanisms to give neutrinos mass. These include SUSY, seesaw models, and many others. In introducing these mechanisms, many of these models inadvertently introduce LNV.

Moving into future sensitivities accessible from experiments such as Belle II, we see that the upper limits of branching fractions for tau- to pi+ mu- mu- decays could be improved by 1 2 orders of magnitude.

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