

## Evolution of Lepton Number for Neutrinos

*Friday, 5 August 2022 12:20 (25 minutes)*

We study the evolution of the lepton number for a  $SU(2)$  doublet consisting of a massive neutrino and a charged lepton. By choosing a specific initial lepton family for a neutrino we can compute the evolution of all lepton family numbers. Our framework results in additional oscillation phases that are important for non-relativistic neutrinos. We study the phenomenology of relativistic and nonrelativistic neutrino physics under this framework. The nonrelativistic region is of particular interest due to the Cosmic Neutrino Background ( $C\nu B$ ) predicted from big bang models. Furthermore, we include important damping effects on the oscillations for the nonrelativistic region by considering a lepton number density. This is based on the works of arXiv:2101.07751 [hep-ph] and arXiv:2106.02783 [hep-ph].

### Attendance type

Virtual presentation

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