

Abstract:

In this thesis, the phenomenon of neutrino oscillations is investigated. General phenomenology for the three active neutrino framework is provided, along with transition probabilities in vacuum. The effect of eventual CP violation on neutrino oscillations and difficulties of its measurement are introduced. Several solutions are discussed, especially the concept of the neutrino factory (i.e. using neutrinos from muon decays) as it is projected by the nuSTORM collaboration. Energy spectra of neutrinos from unpolarized muon decays, both at rest and in flight are calculated, along with the angular distribution and other specifications.