

NuFact'11 XIIIth Workshop on Neutrino Factories, Superbeams and Beta-beams



Contribution ID: 10

Type: **not specified**

Poster "Dissipative Effects in Neutrino Oscillation"

We study neutrino oscillation taking into account the interaction with environment where open quantum system approach is rigorously used. This changes the usual pattern of oscillation because decoherence and relaxation effects can occur in the subsystem of neutrinos. These dissipative effects are added with only one phenomenological parameter constrained by complete positivity evolution. In terms of Majorana neutrinos, the oscillation probabilities can exhibit, even for two flavor neutrinos, a CP-violation effect in vacuum and matter. Both vacuum and matter effects are derived and presented in this work. We compare the obtained probabilities in vacuum with MINOS data. We estimate a limit to the phenomenological dissipative parameter and to the CP Majorana phase. Also, a genuine dissipative effect to three families is presented.

Author: Dr OLIVEIRA, Roberto (Universidade Estadual de Campinas)

Co-author: Prof. GUZZO, Marcelo (Universidade Estadual de Campinas)

Presenter: Dr OLIVEIRA, Roberto (Universidade Estadual de Campinas)