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Quantum decoherence of neutrino mass states

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The phenomenon of neutrino oscillations emerges due to coherent superposition of neutrino mass states. An external environment can modify a neutrino evolution in a way that the coherence is violated. Such a violation is called quantum decoherence of neutrino mass states and leads to the suppression of flavor oscillations. We overview our recent results on neutrino flavour oscillations accounting for the quantum decoherence of neutrino mass states. The influence of the neutrino quantum decoherence on collective neutrino oscillations in supernovae burst is also discussed.

[1] K.Stankevich, A.Studenikin, Neutrino quantum decoherence engendered by neutrino radiative decay, Phys. Rev. D 101 (2020) 056004.
[2] K.Stankevich, A.Studenikin, Collective neutrino oscillations accounting for neutrino quantum decoherence, PoS ICHEP2020 (2021) 216.

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