

Neutrino quantum decoherence engendered by neutrino decay to photons, familons and graviton

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The effect of neutrino quantum decoherence has been studied actively in recent years (see [1-3] and references therein). In our present paper we consider the interaction with an arbitrary reservoir in thermodynamic equilibrium. We have found that within a fairly wide class of theoretical models the parameters of neutrino quantum decoherence are proportional to the neutrino decay rates into a massless particle and light neutrino state. The effect of neutrino quantum decoherence can play a role in neutrino evolution during supernova explosions and in other astrophysical environments.

References

- [1] A. Lichkunov, K. Stankevich, A. Studenikin, M. Vyalkov. Neutrino quantum decoherence engendered by neutrino decay to photons, familons and gravitons, J.Phys.Conf.Ser. 2156 (2021) 1.
- [2] K. Stankevich and A. Studenikin. Neutrino quantum decoherence engendered by neutrino radiative decay. Phys.Rev.D 101 (2020).

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