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Breaking isotropy in the early Universe with neutrino oscillations

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Neutrino oscillations in the early Universe are commonly assumed to preserve homogeneity and isotropy. However, we know that collective oscillations can break both in the environments of supernovae and neutron star mergers. In this talk I will describe the conditions under which homogeneity and isotropy are broken by neutrino oscillations in the early Universe, and I will demonstrate how this materializes during standard neutrino decoupling with a simple model. Finally, I will comment on the possible observable impact of inhomogeneous and anisotropic neutrino oscillations in the early Universe.

Collaboration name

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