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Neutron Stars as a Probe of Cosmic Neutrino Background

Tuesday, 17 September 2024 14:45 (20 minutes)

The Cosmic Neutrino Background (CνB) constitutes the last observable prediction of the standard cosmological model, which has yet to be detected directly. In this talk, I will discuss how the coherent scattering of neutrinos off dense neutron matter can lead to an additional cooling channel in neutron stars (NSs). I will then discuss the prediction of a boosted CνB flux on Earth from nearby NSs and the potential detection prospects in the case of a future nearby galactic supernova. Finally, I will explore the impact of new physics scenarios such as long-range forces, on NS cooling through the CνB.

Working Group

WG 5: Neutrinos Beyond PMNS

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