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Neutrino Decay scenarios on the Cosmic Neutrino Background

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In this work, we explore the consequences of neutrino decay facilitated by a neutral scalar on possible cosmic neutrino background (CvB) detection in the future, especially in the PTOLEMY experiment. We analyze the distortion of the expected event spectrum as a function of the singlet mass and Yukawa couplings, and we consider both a three-neutrino scenario and a scenario with an extra sterile neutrino.

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