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Local density of relic neutrinos with minimal mass

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Nonzero neutrino masses are required by the existence of flavor oscillations, with values at least of the order of 50 meV. We consider the gravitational clustering of relic neutrinos with minimal masses at the Earth neighborhood, where their number density is enhanced with respect to the average cosmic density. The local overdensity is found using N-one-body simulations, including an improved treatment of matter distribution in the Milky Way, both baryonic and dark matter. Our results could be interesting for future experiments aiming at detecting the relic neutrino background, such as the PTOLEMY project.

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