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Constraints on Neutrino Emission from Nearby Galaxies Using the 2MASS Redshift Survey and IceCube

The result of two searches for correlations between neutrinos and the matter in the Local Universe ($z < 0.03$) is presented : A template analysis, which looks for neutrino emission patterns coming from collisions between ultra-high-energy cosmic rays (UHECR) and local galaxy matter, and a multiplet analysis, which looks for neutrino produced in low-luminosity sources within local galaxies. Both searches use the 2MASS Redshift Survey (2MRS) catalog as a proxy for the distribution of matter in the Local Universe, while the neutrino data taken from a seven-year sample developed for time-integrated searches of neutrino sources in the IceCube Neutrino Observatory.

Mini-abstract

Are the neutrinos observed by IceCube originating from galaxies in our local Universe? Probably Not!

Experiment/Collaboration

IceCube

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