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A Search for Neutrino Sources in the Local Anisotropic Universe with IceCube

The distribution of galaxies within the local universe (LU) is characterized by discernable anisotropic features. Observatories searching for the production sites of astrophysical neutrinos can take advantage of these features to establish potential directional correlations between a neutrino dataset and overdensities in the galaxy distribution in the sky. We present the results of a correlation search between a seven-year time-integrated neutrino dataset from the IceCube Neutrino Observatory and the 2MASS Redshift Survey (2MRS) Catalog. The analysis looks for low-luminosity sources within the LU, which would produce neutrino multiplets in the IceCube dataset that directionally correlate with the galaxy distribution. No significant correlations were observed. Constraints are placed on the density of standard candle sources of neutrinos at low luminosities.

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