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Imaging Galactic Dark Matter with IceCube High-Energy Cosmic Neutrinos

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The origin of the observed extraterrestrial neutrinos is still unknown, and their arrival directions are compatible with an isotropic distribution. This observation, together with dedicated studies of Galactic plane correlations, suggest a predominantly extragalactic origin. Dark matter-neutrino interactions, which have been extensively studied in cosmology, would thus lead to a slight suppression of flux at energies below a PeV and deficit of events in the direction of Galactic center, which would be seen by IceCube. I will present results of a recent analysis using the four-year high-energy starting event dataset to constrain the strength of dark matter-neutrino interactions and show that in spite of low statistics IceCube can probe regions of the parameter space inaccessible to current cosmological methods.

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