ICRC2015

ICRC
The Astroparticle Physics Conference
34th International Cosmic Ray Conference
July 30 - August 6, 2015
The Hague, The Netherlands

Contribution ID: **800** Type: **Poster contribution**

Astrophysical interpretation of small-scale neutrino angular correlation searches with IceCube

Saturday, August 1, 2015 3:30 PM (1 hour)

IceCube, a cubic-kilometer sized neutrino detector at the geographical South Pole, has recently discovered a diffuse all-flavor flux of astrophysical neutrinos. However, the corresponding astrophysical sources have not been identified yet. We focus on the results of the angular correlation analysis (arXiv:1408.0634). This analysis is sensitive to clusters of muon neutrino arrival directions as expected from populations of astrophysical sources too weak to be detected individually. We present a method to reinterpret these results for arbitrary source count distributions. We exemplarily show the resulting limits for the test of a class of source count distribution based on Fermi observations of resolved blazars.

Collaboration

IceCube

Registration number following ”ICRC2015-I/”

702

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Session Classification: Poster 2 DM and NU

Track Classification: NU-EX