

Abstract Submitted
for the APR20 Meeting of
The American Physical Society

Constraining Galaxy Clusters as Steady Sources of Cosmic Neutrinos with IceCube MEHR UN NISA, Michigan State University, ANDREW LUDWIG, SRINIVASAN RAGHUNATHAN, UCLA, MARCOS SANTANDER, University of Alabama, ICECUBE COLLABORATION — The origin of the high-energy astrophysical neutrino flux observed by the IceCube Neutrino Observatory is an open problem, directly linked to the search for the sources of the highest energy cosmic rays. One promising class of candidate sources are clusters of galaxies. Cosmic rays accelerated in central AGN activity can be confined by turbulent magnetic fields in galaxy clusters. These cosmic rays can then interact with the intra-cluster medium to produce a steady flux of neutrinos and gamma rays. Such models of neutrino emission can be tested by searching for correlations between the directions of neutrino events and galaxy clusters hosting AGN. Using a sample of over 1500 X-ray bright clusters, we present the first search for associated neutrino signals in 10 years of IceCube data, and discuss the implications for specific models of cosmic neutrino emission.

Mehr Un Nisa
Michigan State University

Date submitted: 10 Jan 2020

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