

Testing the AGN Radio and Neutrino correlation using the MOJAVE catalog and 10 years of IceCube Data

Monday, July 12, 2021 6:36 PM (12 minutes)

On 22 September 2017 IceCube reported a high-energy neutrino event which was found to be coincident with a flaring blazar, TXS 0506+056. This first multi-messenger observation hinted at blazars being sources of observed high-energy astrophysical neutrinos and raised a need for extensive correlation studies. Recent work shows that the internal absorption of gamma rays, and their interactions intrinsic to the source and with the extragalactic background, will cause a lack of energetic gamma-ray and neutrino correlation while hinting towards a correlation between neutrinos and lower photon energy observations in the X-ray and radio bands. Studies based on published IceCube alerts and radio observations, report a possible radio-neutrino correlation in both gamma-ray bright and gamma-ray dim active galactic nuclei (AGN). However, they have marginal statistical significance due to limited available data. We present a correlation analysis between 15 GHz radio observations of AGN reported in the MOJAVE XV catalog and 10 years of IceCube detector data and discuss the results derived from a time averaged stacking analysis.

Keywords

AGN; IceCube; Neutrino; Radio; MOJAVE; multi-messenger; TXS0506+056;

Collaboration

IceCube

other Collaboration

Subcategory

Experimental Results

Primary author: DESAI, Abhishek (University of Wisconsin Madison)

Co-authors: VANDENBROUCK, Justin (University of Wisconsin Madison); PIZZUTO, Alex (University of Wisconsin Madison); FOR THE ICECUBE COLLABORATION

Presenter: DESAI, Abhishek (University of Wisconsin Madison)

Session Classification: Discussion

Track Classification: Scientific Field: MM | Multi-Messenger