

Nathan Whitehorn – HEP Seminar talk – January 24, 2020  
University of California, Los Angeles

Title: "The TeV-PeV Diffuse Neutrino Background"

Abstract: In 2014, the IceCube Neutrino Observatory announced the discovery of an isotropic, isoflavor diffuse background of neutrinos with energies extending from 10 TeV to well above 1 PeV, presumably associated with the unknown emitters of high-energy cosmic rays. Six years later, the origin of these neutrinos remains a mystery. The background is, within measurement uncertainties, uncorrelated with any of the standard catalog of high-energy sources (our galaxy, blazars, gamma-ray bursts, etc.), challenging explanations involving simple models. The 2017 detection of neutrino emission from the distant blazar TXS 0506+056 has only deepened this mystery. In this talk, I will discuss the current state of our knowledge of the high-energy neutrino sky and outline the next steps in The experimental program to resolve these questions.