

Abstract Submitted
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Constraining a Galactic Origin of the IceCube Neutrinos with HAWC All-Sky Gamma-Ray Observations¹ JOHN PRETZ, Pennsylvania State Univ, HAWC COLLABORATION² — The origin of the TeV-PeV high-energy astrophysical neutrino events seen in IceCube data is hotly debated. If the events are not due to dark matter, the relative isotropy of the signal points to a dominant extra-Galactic population. Nevertheless sub-dominant Galactic scenarios have not been ruled out. We expect the production of Galactic TeV-PeV neutrinos (via charged pion decay) to be accompanied by high-energy gamma rays (from neutral pion decay). Data from the High Altitude Water Cherenkov Observatory (HAWC) reveal a strong detection of emission from the plane of the galaxy, providing a constraint on the fraction of the IceCube flux that can be of Galactic origin. A search for large-scale isotropic photon emission has the potential to provide analogous constraints. I will present HAWC's measurement of the total TeV emission in the Northern half of the Galactic plane along with current limits on isotropic diffuse gamma-ray emission and discuss the implications for the origin of the IceCube neutrinos.

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