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Search for diffuse gamma-ray emission from the Galactic plane with IceCube[1] HERSHAL PANDYA, Dept. of Physics and Astronomy, University of Delaware, Newark, DE 19711, USA., ZACHARY GRIFFITH, Wisconsin IceCube Particle Astrophysics Center (WIPAC) and Department of Physics, University of Wisconsin-Madison, Madison, WI 53706, USA., THE ICECUBE COLLABORATION COLLABORATION — We present a search for diffuse PeV gamma-rays arising from interactions of cosmic rays with the interstellar gas in the Galactic plane. We analyze air shower data recorded by the IceCube Observatory from May 2011 to May 2016 in the energy range of 0.6 PeV to 100 PeV for the presence of gamma-ray showers. Muon poor gamma-ray induced air showers are discriminated from the cosmic ray showers using the characteristics of signals recorded by IceTop as well as the in-ice IceCube array. We carry out an unbinned maximum likelihood analysis on the Galactic plane region ($270^\circ l 335^\circ$) located in the IceCube field of view. The pion decay component of the Fermi-LAT diffuse emission model is used as the spatial template for the analysis. No statistically significant evidence for diffuse gamma-ray emission was found. We derive an upper limit of 1.04×10^{-9} GeV cm^{-2} s^{-1} (90% confidence limit) on the normalization of the spectral energy distribution at 2 PeV assuming an E^{-3} spectrum.

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