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# Search For PeV Gamma Ray Emission with IceCube Observatory

PeV gamma rays experience strong attenuation due to interaction with the cosmic microwave background, thus allowing access only up to Galactic distances. However, their hadronic origin implies that a measurement of the diffuse PeV emission from the Galactic plane can inform on the cosmic-ray propagation mechanisms as well as cosmic-ray spectrum elsewhere within the Galaxy. Moreover, a successful source detection would point to a Galactic accelerator capable of accelerating cosmic rays up to at least a few PeV. The IceCube observatory and its surface air shower array, IceTop, can detect the extensive air showers produced by PeV gamma rays entering Earth's atmosphere. Air shower footprint from IceTop and TeV muon signal from the deep ice detector are used to distinguish muon-poor gamma ray showers from the highly abundant cosmic rays. In this talk, I will present results from the search for diffuse PeV emission from the Galactic plane and the search for point-like sources in IceCube's field of view.

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