

Searches for neutrino point sources in the Northern Sky with the IceCube Neutrino Observatory

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Since its first discovery in 2013, the IceCube Neutrino Observatory has been studying the properties of a diffuse flux of astrophysical high-energy neutrinos, trying to unveil the enigma of its origin. Using over 9 years of IceCube data reprocessed to the latest detector calibrations, we investigate the Northern Sky for a local excess of high-energy neutrinos over the atmospheric and cosmic background, to be associated with a neutrino point source. Our analysis allows more accurate localization and neutrino flux characterization of the sources compared to previous works, while also improving the discovery potential by up to ~30%. Furthermore, we present an analysis looking for an excess of signal coming from a population of sub-threshold neutrino sources and discuss the implications on the neutrino luminosity and local source density. In this contribution, we report on the most recent results for neutrino point sources in the Northern Sky.

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