

## Searches for Point and Extended Sources of Neutrinos with the IceCube Detector

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Observing a neutrino point source would be a “smoking gun” signature of a cosmic ray accelerator. Here we present searches for time-independent neutrino emission from astrophysical sources using the IceCube detector. The analyses use data collected during the first four years of detector operation. An unbinned maximum likelihood method is used to search for individual point sources, spatially extended sources, and emission from specific source classes. These analyses are sensitive to TeV–PeV energy neutrinos in the northern sky and PeV–EeV neutrinos in the southern sky. Limits on extraterrestrial neutrino fluxes are compared to model predictions. Additionally, we show results from a search for point sources using a low-background sample of high-energy candidate neutrino events, and discuss upcoming improvements to IceCube point source searches.

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