

Abstract Submitted
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Searching for Neutrinos with AMANDA-II JESSICA HODGES,
University of Wisconsin - Madison, ICECUBE COLLABORATION — AMANDA-II analyses include the search for neutrinos from extragalactic point sources and gamma ray bursts, as well as indirect dark matter searches. A brief summary is given on these searches and more detailed analysis is presented for the search for muon neutrinos from unresolved sources. These sources, although individually undetectable, may combine to make a detectable signal across a large sky region. A search for a diffuse flux of extraterrestrial TeV-PeV muon neutrinos was performed with AMANDA-II data collected between 2000 and 2003. Atmospheric muons and neutrinos served as the main background and calibration source for this search. An upper limit of $E^2\Phi_{90\%C.L.} < 8.8 \times 10^{-8} \text{ GeV cm}^{-2} \text{ s}^{-1} \text{ sr}^{-1}$ was placed on the diffuse flux of muon neutrinos with a $\Phi \sim E^{-2}$ spectrum for the energy range 16 TeV to 2.5 PeV. Limits were also placed on prompt and astrophysical neutrino models with other energy spectra. A detailed systematic error study was performed to study detector response and uncertainties in the theoretical atmospheric muon and neutrino fluxes.

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