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Search for Extremely High Energy Neutrinos¹

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Dedicated high-energy neutrino telescopes based on optical Cherenkov techniques have been scanning the cosmos for about a decade. Consequently, neutrino flux limits have improved by several orders of magnitude in the TeV-PeV energy interval. At higher energies, detectors using radio Cherenkov techniques have produced aggressive limits on the neutrino flux. In this talk, we summarize current efforts to search for sources of high energy neutrinos and describe a novel concept for the next generation of astrophysical neutrino detection, called ARIANNA, which takes advantage of unique geophysical features of the Ross Ice Shelf in Antarctica. ARIANNA, based on the radio Cherenkov technique, is designed to improve the sensitivity to neutrinos with energies in excess of 10^{17}eV by at least a factor of 10 relative to current limits. We describe the physics motivation for ARIANNA, which includes a measurement of the GZK neutrino flux.

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