

Feasibility of an Air Cherenkov Array as an Atmospheric Neutrino Veto for IceCube

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A primary challenge in neutrino astronomy is to distinguish neutrinos produced by astrophysical sources from muons and neutrinos produced in our atmosphere. Atmospheric neutrinos can be rejected if traces of their parent air showers are detected, such as penetrating muons observed by the outermost sensors in a neutrino telescope. Alternatively, air showers could be detected at the surface, either through particles reaching the ground or through Cherenkov emission by particles in the atmosphere. We present an initial study of the requirements and potential benefits of an array of air Cherenkov detectors that could be deployed above IceCube to enhance its sensitivity to astrophysical neutrinos.

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