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Simulation Studies for a Surface Veto Array to Identify Astrophysical Neutrinos at the South Pole

Saturday, August 1, 2015 3:30 PM (1 hour)

Motivated by the evidence of astrophysical neutrinos seen in IceCube, we consider various array configurations of particle detectors and study their efficiency for identifying neutrinos of astrophysical origin when combined with IceCube or a next generation neutrino detector at the South Pole. The identification of astrophysical neutrinos is accomplished by tagging muons and neutrinos of atmospheric origin by detecting the acompanying air shower. We will report on the various simulation approaches we have used to understand the capabilities of such arrays in the identification of astrophysical neutrinos and we will discuss how the veto efficiency is determined by the sensitivity to the muon and/or electromagnetic components of the air showers. The configurations considered include various array layouts and detector station sizes.

Collaboration

IceCube

Registration number following "ICRC2015-I/"

460

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