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A Compact Air-Shower Imaging System for Ultrahigh-Energy Neutrino Detection

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The Trinity Observatory is a proposed ultra high energy (UHE) neutrino detector with a core-energy range of 10^6 GeV- 10^{10} GeV, bridging the observational gap between IceCube and radio UHE detectors like GRAND. It is a system of air-shower imaging telescopes that detect Earth-skimming tau neutrinos from multiple mountain tops. The telescopes have a novel-design 10x60-degree rectangular wide field of view optics each, that image air-shower onto a 3,300-pixel curved-profiled SiPM camera. Trinity's primary science objectives are the extension of the IceCube measured neutrino flux to UHE and the detection of cosmogenic neutrinos. In this contribution, we focus on the current design of Trinity and discuss its performance.

Collaboration name

Trinity

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