

Trinity: An instrument to detect cosmogenic neutrinos with the Earth skimming technique

The predictions of the cosmogenic-neutrino flux at $1\text{e}9\text{ GeV}$ are pretty solid and depend mostly on the composition of the cosmic-rays above $1\text{e}10\text{ GeV}$. It is, therefore, no surprise that the hunt to detect the first cosmogenic neutrino is a hot topic in astroparticle physics. But pushing the experimental sensitivity into the predicted flux region is a challenge. A major obstacle for experiments is to obtain a large enough acceptance while keeping costs at reasonable levels. I have performed a conceptual design study of a dedicated array of Cherenkov telescopes that uses the Earth skimming technique to detect tau neutrinos. My studies show that a fairly small Cherenkov telescope system is sufficient to reach sensitivities that are competitive with other proposed neutrino experiments in the same energy range, like ARA and ARIANNA, and outperforms them in terms of costs. Here I present details of the design study and discuss the proposed array of Cherenkov telescopes, which I named Trinity.

Session and Location

Wednesday Session, Poster Wall #206 (Ballroom)

Poster included in proceedings:

yes

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