



Contribution ID: 171

Type: **Parallel Talk**

Direction Reconstruction for the Radar Echo Telescope for Neutrinos (RET-N)

Thursday 11 August 2022 16:10 (20 minutes)

The Radar Echo Telescope for Neutrinos (RET-N) is a proposed experiment to detect neutrinos with energies above ~ 10 PeV utilizing the radar echo method in polar ice. RET-N will consist of a phased-array radio transmitter and an array of receivers, aiming to detect the ionization trail from an ultra-high-energy neutrino interaction in-ice via active radar sounding. The received signal is a function of the transmitted signal (including any modulation), array geometry, geometry of the reflection, and propagation effects from the ice. In this talk we discuss properties of the radar signal and how we will use these properties to reconstruct the incident neutrino's arrival direction. These methods will be tested in the pathfinder experiment for RET-N, the Radar Echo Telescope for Cosmic Rays (RET-CR).

Collaboration name

Radar Echo Telescope (RET)

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