

The Radar Echo Telescope

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The Radar Echo Telescope is currently deployed and taking data for 2024 at the summit station at Greenland. The ultimate objective of the Radar Echo Telescope is to detect high-energy cosmic neutrinos with the Radar Echo Telescope for Neutrinos (RET-N). We have observed radar reflections from particle cascades in a lab setting at SLAC National Accelerator Laboratory. The extensive air shower (EAS) of a high energy cosmic ray (primary energy $> 10\text{PeV}$) deposits around 10% of its primary energy close to the shower core at a high altitude ice sheet producing a much denser in-ice secondary cascade. This in-ice cascade is dense enough to be detected via radar reflections. The Radar Echo Telescope for Cosmic Rays (RET-CR) is a predecessor to RET-N, enabling a validation of the radar method in-nature. The surface stations of the RET-CR triggers on an incoming air shower. It consists of 6 stations with SKALA (50 - 350 MHz) radio antennas and scintillator panels. The parameters reconstructed by the surface station would be validated against those obtained by the in ice radar system. My talk would discuss on the reconstructions for the surface stations, galactic calibrations for the surface station SKALA antennas and insight into the data.

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