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The Radar Echo Telescope for Cosmic Rays and Neutrinos STEVEN PROHIRA, Ohio State Univ - Columbus, RADAR ECHO TELESCOPE COLLABORATION — The Radar Echo Telescope is a proposed detector that aims to target neutrinos at energies at and above 10^{16} eV, in an effort to extend the neutrino spectrum beyond the highest energy neutrinos detected to date. When a high-energy particle (like a neutrino) interacts in a dense material, it produces a relativistic cascade of charged particles, leaving an ionization trail behind. Radio waves can be transmitted toward—and reflected from—this ionization trail, to be detected by distant receivers. This radar echo method can be used to detect ultra high-energy neutrino interactions in the ice. As a pilot implementation, the Radar Echo Telescope for Cosmic Rays (RET-CR) aims to detect radar echoes from the ionized trail left in the ice as an ultra-high energy cosmic ray air shower core impacts the surface of a high-elevation ice sheet, creating a cascade in the ice. In this talk we will present the concept for RET-CR and discuss it as a pathfinder for the eventual Radar Echo Telescope for Neutrinos (RET-N), which seeks to detect neutrinos at energies of 10^{16} eV and beyond.

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