Contribution ID: **20** Type: **not specified**

Measurement of the snow accumulation in Antarctica with a neutrino radio detector and extension to measure the index-of-refraction profile.

Tuesday, 24 November 2020 15:33 (3 minutes)

High-energy neutrino astronomy has become a powerful tool to explore the most extreme environments in our universe. High energy neutrinos are detected most efficiently via the Askaryan effect in ice, where a particle cascade induced by the neutrino interaction produces coherent radio emission. There are several pilot radio arrays at the moment, among them ARIANNA at the Ross Ice Shelf and the South Pole. In order to reconstruct the neutrino energy with high precision, the snow accumulation must be monitored in real time. Therefore, one ARIANNA station was extended with a radio emitter that allows the measurement of the snow accumulation with unprecedented precision. I will present 14 months of measured data and furthermore show how the measurement setup can be extended to also measure the change of the index-of-refraction with depth, another property relevant for reconstruction of the neutrino properties.

Abstract Track

Flash talk, Astroparticle physics

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