



Contribution ID: 17

Type: **not specified**

ARIANNA: Measurement of cosmic rays with a radio neutrino detector in Antarctica

Thursday 14 June 2018 10:20 (20 minutes)

The ARIANNA detector aims to detect neutrinos with energies above 10^{16} eV by instrumenting 0.5 Teratons of ice with a surface array of a thousand independent radio detector stations in Antarctica. The Antarctic ice is transparent to the radio signals caused by the Askaryan effect which allows for a cost-effective instrumentation of large volumes. Several pilot stations are currently operating successfully at the Moore's Bay site (Ross Ice Shelf) and at the South Pole.

As the ARIANNA detector stations are positioned at the surface, the more abundant cosmic-ray air showers are also measured and serve as a direct way to prove the capabilities of the detector. We will present measured cosmic rays and will show how the incoming direction, polarization and electric field of the cosmic-ray pulse can be reconstructed from single detector stations comprising 4 upward and 4 downward facing LPDA antennas. Furthermore, a novel estimator of the cosmic-ray energy is presented that requires only the energy fluence and frequency slope at a single location.

Authors: GLASER, Christian (University of California, Irvine); ARIANNA COLLABORATION

Presenter: GLASER, Christian (University of California, Irvine)

Session Classification: Experimental data