

Abstract Submitted
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The Results of Ice Studies for the ARIANNA Detector from the Antarctic Seasons 2010-11 and 2011-12 JORDAN HANSON, UC Irvine, ARIANNA COLLABORATION — The Antarctic Ross Ice-Shelf Antenna Neutrino Array is an experiment designed to detect cosmogenic neutrinos with energies in excess of 10^{17} eV, including neutrinos created as by-products of cosmic rays undergoing the GZK effect. ARIANNA is sensitive to down-going neutrinos because the Askaryan radio-frequency pulses they create reflect off of the interface between the ocean and the ice-shelf. We discuss and compare measurements of ice properties performed during two seasons of Antarctic expeditions. We calculate the depth of the ice shelf from timing delays of reflected radio pulses. We also simultaneously solve for the reflectivity of the ice-ocean interface beneath the detector volume and attenuation properties of the ice-shelf itself, using data taken with several instrumentation configurations. Finally, we demonstrate that the reflection surface preserves the polarization of reflected radio signals.

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