

Abstract Submitted  
for the APR18 Meeting of  
The American Physical Society

**SOLARIS – A Dual-Mode Spectrometer for Charged-Particle Spectroscopy at ReA**<sup>1</sup> BENJAMIN KAY, Argonne Natl Lab — The reaccelerated (ReA) beam capabilities at the National Superconducting Cyclotron Laboratory (NSCL), and in due course the Facility for Rare Isotope Beams, allow for the study of a wide range of transfer and inelastic-scattering reactions at ideal incident beam energies of a few MeV per nucleon above the Coulomb barrier. To take advantage of this capability, a dual-mode solenoidal spectrometer has been designed. In one mode, the spectrometer will operate in a manner similar to the HELIOS spectrometer at Argonne National Laboratory, with an on-axis Si array, primarily for studies with beam intensities greater than 10,000 particles per second. In the other mode, it will operate with the NSCL Active Target Time Projection Chamber inside the bore of the solenoid, taking advantage of the up to 4-T field. In this mode, reactions with beams as weak as a few hundred particles per second are possible. An overview of the instrument, planned implementation on the ReA6 beamline, and physics opportunities will be presented, with particular focus on the design of the Si-array mode of operation.

<sup>1</sup>This material is based upon work supported by the U.S. Department of Energy, Office of Science, Office of Nuclear Physics, under Contract Number DE-AC02-06CH11357.

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Date submitted: 12 Jan 2018

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