

Abstract Submitted
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SECAR: The Separator for Capture Reactions in Nuclear Astrophysics¹ AALAYAH SPENCER, SARA AYOUB, Michigan State University/National Superconducting Cyclotron Laboratory, SECAR COLLABORATION² — Knowledge of the reaction rates of proton and alpha capture reactions that take place in the high temperature and density plasma of stellar explosions (e.g., X-Ray Bursts, Novae, etc.) is crucial to understanding the mechanisms behind those explosions and the nucleosynthesis at those sites. The SEparator for CAPture Reactions (SECAR) is a recoil separator that will be dedicated to measure the reaction rates of astrophysically relevant capture reactions on unstable isotopes of mass 15 to 65. SECAR is currently under construction at the National Superconducting Laboratory (NSCL) and the Facility for Rare Isotope Beams (FRIB). It consists of 8 dipoles, 15 quadrupoles, 3 hexapoles, 1 octopole and 2 Wien filters with stringent performance conditions. This presentation will focus on the tools used to optimize beam transport. The magnet acceptance procedure including testing for magnetic field reproducibility, will also be presented.

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²Separator for Capture Reactions (SECAR)

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