

Abstract Submitted
for the DNP08 Meeting of
The American Physical Society

Simulations of a HELIOS Recoil Detector JACK WINKELBAUER,
Western Michigan University, HELIOS COLLABORATION — The Helical Orbit Spectrometer (HELIOS) is a new type of light-charged particle spectrometer, designed to study inverse kinematic nuclear reactions with unstable beams. HELIOS is based around a 3T superconducting solenoid with the magnetic axis aligned with the beam axis. The ejected light nuclei undergo helical motion, transporting them from the target to a hollow array of silicon detectors. The heavy recoil nuclei scatter at small angles in the forward direction. HELIOS will require heavy recoil detection. Possibilities for recoil detection include an ionization chamber or an annular silicon detector. A full three dimensional field map has been measured and incorporated into the existing Monte Carlo simulations. These simulations have been used to investigate the transport properties of the HELIOS spectrometer for the heavy recoil nuclei. The acceptance of these recoil detection methods, as well as details on the placement and operation of a HELIOS recoil detector will be presented. Work supported by the U. S. Department of Energy, Office of Nuclear Physics under grant numbers DE-FG02-04ER41320 and DE-AC02-06CH11357.

Jack Winkelbauer
Western Michigan University

Date submitted: 14 Aug 2008

Electronic form version 1.4