Abstract Submitted
for the DNP10 Meeting of
The American Physical Society

Program for Simulating Energy Spectra in Transfer Reaction Studies[1] S.A. GRAVES, R.L. KOZUB, J.L. WHEELER, Tenn. Tech. Univ., D.W. BARDAYAN, ORNL — Studies of exotic nuclei with transfer reactions are important for nuclear structure studies and for many astrophysical applications such as understanding stellar explosions, the nuclear synthesis of lighter elements, and experimentally determining stellar reaction rates. However, the energy spectra from such reactions are sometimes counter intuitive and difficult to interpret. A FORTRAN program has been created to aid in visualizing the expected energy spectra of detected particles for any reaction having two particles in the exit channel. The user provides information about the reaction, the incident beam energy, and the angle of interest. The program produces a visual spectrum using nuclear databases, an existing kinematics code (RELKIN2), and the Xmgrace graphing software. The user is able to display multiple energy spectra so that the effect of various target components can be estimated. An example experimental setup and the output of this program will be presented.

[1]This research is supported by the U. S. Department of Energy.

Raymond Kozub
Tennessee Technological Univ.

Date submitted: 27 Jul 2010 Electronic form version 1.4