Abstract Submitted
for the DNP11 Meeting of
The American Physical Society

Beam characterization and optimization using a tunable Iris Aperture S.A. GRAVES, R.L. KOZUB, Tenn. Tech. U., D.W. BARDAYAN, ORNL — Successful reaction studies with radioactive beams require optimization of both the beam tune and detector placement. Some experiments require placing detectors close to the beam axis, and thus in potentially harmful positions, while the beam is being tuned. Other experiments benefit from some detector shielding that cannot necessarily be estimated beforehand. A good solution can often be achieved by an appropriate placement of an Iris Aperture (i.e., a circular collimator with a variable diameter) in the target chamber. Although this device is useful for shielding detectors, e.g., while tuning the beam at the beginning of an experiment, it is difficult to determine the exact size of the opening while it is under vacuum. A control module for the motor and screw drive system has been built that allows an operator to open and close the Iris Aperture from outside the vacuum. Using LED indicators, the module also provides information on the size of the aperture opening. Details will be presented. This research is supported by the U. S. Department of Energy.

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Date submitted: 03 Aug 2011 Electronic form version 1.4