Abstract Submitted
for the DNP15 Meeting of
The American Physical Society

Sensor and Instrumentation Development for Cryogenic Detectors NICHOLAS ALLEN, Austin Peay State University, MICHEAL FEBBRARO, STEVEN PAIN, Oak Ridge National Laboratory, CHRISTINE AIDALA, EZRA LESSER, AARON WHITE, University of Michigan — In the study of nuclear science, there is an ever increasing need for better efficiency and resolution in In nuclear sciences, new detectors with improved detection efficiency and energy resolution are constantly needed to drive experimental discovery and accuracy.Certain cryogenic liquids, particularly liquid noble gases such as Argon and Xenon,are very sensitive to energy deposited byionizingparticles andhave many other useful properties for detector development.Developing these cryogenic liquids to operate with known detection methodsoffers exciting opportunities for experimental setups and has a wide variety of uses with regards to nuclear studies, such as gamma ray, neutron, and neutrino detection. However, operating at such low temperatures presents many complications when trying to effectively control and maintain detectors. In this poster, I will present some of the equipment and systems developed for particular low temperature applications. This will include the use of platinum resistance thermometers, capacitance-based liquid level sensors, and various systems used to regulate fluid flow for cryogenic detector systems.

Nicholas Allen
Austin Peay State University

Date submitted: 01 Aug 2015 Electronic form version 1.4