Abstract Submitted
for the SES16 Meeting of
The American Physical Society

Effect of Thermal Treatment on Electrical Properties of CZT Detectors[1] JONATHAN LASSITER, STEPHEN BABALOLA, KWYNTERO KELSO, RAEQUANE JONES, Alabama AM University — In order to understand the contributing factors responsible for the diminished electrical properties during annealing, CZT samples were annealed in the temperature range of 100 - 400^{o}C. Following each thermal treatment measurements of infrared microscopy, current-voltage characteristics, and X-ray photoelectron spectroscopy were performed in order to determine changes in bulk defect morphology, electrical properties, and surface material degradation, respectively. Samples annealed at 300^{o}C demonstrated improvements in the electrical properties of the detector while thermal treatments at 400^{o}C were shown to approximate a critical temperature of deterioration. Reduction in leakage current was observed at elevated temperatures up to 300^{o}, after which increased leakage current was observed at higher temperatures, consistent with previous studies. Attempts were made to explain this critical temperature.

[1]Alabama Space Grant Consortium, and DOE-NNSA MSIPP

Jonathan Lassiter
Alabama A
M University

Date submitted: 14 Oct 2016 Electronic form version 1.4