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Sensitivity enhancement for the newly commissioned high efficiency CAESAR array via shielding CHRISTOPHER SEGAL, Department of Physics, Florida State University, Tallahassee, FL 32306, ALEXANDRA GADE, ANDREW RATKIEWICZ, TRAVIS BAUGHER, Department of Physics and Astronomy, Michigan State University, East Lansing, Michigan 48824, USA, GEOFFERY GRINYER, DIRK WEISSHAAR, National Superconducting Cyclotron Laboratory, Michigan State University, East Lansing, Michigan 48824, USA , MIGUEL BENCOMO, Physics Department, The University of Texas at El Paso, El Paso, Texas 79968-0515 — The CAESium iodide ARray (CAESAR) has been constructed at the National Superconducting Cyclotron Laboratory (NSCL) to further probe the structure of nuclei and determine their level of deformation by in-beam gamma-ray spectroscopy. Completed in May 2009 the commissioning experiment of Coulomb excitation (Coulex) in ^{56}Ni was performed with great success. The commissioning run was quickly followed by a second Coulex experiment in the region of ^{40}Si with improved shielding against background radiation. The difference in live time, detector efficiency, and detector sensitivity between the two experiments improved noticeably. Quantitative comparisons between the two experiments will provide great insight into the optimization of CAESAR's performance as well as determining if additional shielding will further improve detection efficiency of the array for future experiments.

Christopher Segal
Department of Physics, Florida State University, Tallahassee, FL 32306

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