

Abstract Submitted
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Development of an Advanced Fission - Fusion - Evaporation Residue Detection System¹ A.L. CARALEY, State University of New York at Oswego, D. SHAPIRA, J.F. LIANG, C.J. GROSS, R.L. VARNER, J.R. BEENE, Oak Ridge National Laboratory, E. CHAVEZ, INF and UNAM — A detector system, to measure fission fragments and evaporation residues resulting from collisions induced by rare neutron-rich nuclei, is being designed. The detector system is intended for use with radioactive ion beams and with low intensity stable beams ($\leq 5 \times 10^4$ particles per second) and will require high efficiency. The primary detector will consist of an ionization chamber lined with double-sided silicon-strip detectors and will provide for tracking and particle identification capabilities over a wide angular range. Design and simulation of the detector system, using GEANT4, is ongoing. Complete tracking and response simulations for fragments and residues will be performed by incorporating statistical-model-code events (*e.g.* from GEMINI or PACE2) into the calculations. Details of the detector design and simulations and results of fission fragment and evaporation residue efficiency calculations will be presented. The impact of the expected performance on planned radioactive beam experiments, including attempts to synthesize heavy elements, will be discussed as well.

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Anne L. Caraley
State University of New York at Oswego

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