



Heavy Element Research at Texas A&M University

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At the Cyclotron Institute at Texas A&M University, our Heavy Elements Group has been working in three main areas in recent years: developing new techniques to study chemical properties of heavy elements, investigating the factors that influence compound nucleus survivability, and increasing the sensitivity of the AGGIE gas-filled separator. We have been working to modify Si detectors with organic monolayers in order to create chromatographic surfaces and tune the interaction between a heavy atom and the surface. In recent years, we have studied the adsorption of Er, Ir, and At on two different self-assembled monolayer (SAM) surfaces, and we are planning a future experiment to study the adsorption of Po on a SAM created with 1,9-nonanedithiol. An offline source of ^{216}Po is being used for developmental experiments and an online experiment utilizing ^{196}Po is planned. After completing a study of the influence of compound nucleus deformation on the $^{44}\text{Ca} + ^{154,156,157,160}\text{Gd}$ reactions, we have begun to study reactions of the same targets bombarded by ^{48}Ti . Finally, we are in the process of upgrading the maximum magnetic rigidity of AGGIE to enable future experiments with heavier elements, including a potential study of No adsorbed on a SAM. This talk will discuss the most recent results from these projects and future plans.