

Abstract Submitted
for the DNP15 Meeting of
The American Physical Society

Search for High Energy Alpha Particles in the Reactions of 7.5A MeV ^{197}Au with ^{232}Th S. WUENSCHHEL, J.B. NATOWITZ, K. HAGEL, M. BARBUI, J. GAUTHIER, X. CAO, C. MA, R. WADA, Texas A&M University Cyclotron Institute, S. KOWALSKI, K. SCHMIDT, University of Silesia, Z. MAJKA, Z. SOSIN, A. WIELOCH, Jagiellonian University — The search for alternative reaction paths for heavy element production requires a careful experimental investigation of mechanisms other than fusion, e.g., multi-nucleon transfer or very asymmetric fission of heavy transient systems. Many super heavy elements are expected to decay by unusually high energy alpha particle emission. Using ^{197}Au projectiles incident on a ^{232}Th target, we are pursuing survey experiments based upon the implantation of recoiling heavy reaction products in an active catcher composed of 63 fast scintillators. The 7.5 MeV/nucleon ^{197}Au beam was pulsed at different intervals in order to be able to identify species of different half-life. These data will be discussed as will extensions of this program using an upgraded active catcher system consisting of YAP:Ce scintillators. These scintillators provide differentiation between n/γ , alphas, and heavier fragments. In addition to improving identification of alphas emitted from heavy residues, these detectors provide access to the neutron rich deep inelastic transfer region of the chart of the nuclides through an enhanced ability to identify fission decay.

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Date submitted: 18 Jun 2015

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