

Abstract Submitted
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Target characterization for one percent precision KYLE SCHMITT, Los Alamos National Laboratory, NIFFTE COLLABORATION — Reaction cross section measurements are a necessary input for models of fission application technologies. Precision measurements are currently underway to reduce design margin requirements, which depend on the uncertainties for these measured cross sections. The Neutron Induced Fission Fragment Tracking Experiment (NIFFTE) collaboration has undertaken to measure the Pu-239(n,f) cross section in ratio to the U-235(n,f) cross section in the fast neutron energy regime with a total systematic uncertainty of 1%. To achieve this level of uncertainty, it is necessary to characterize beam, target, and detector with unprecedented precision. One important challenge for this measurement is to characterize Pu-239 and U-235 samples with spontaneous alpha decay rates that differ by a factor of 10,000, each to a precision less than 1%. A low-geometry alpha counting setup has been developed for this purpose. Characterization methods and results will be presented.

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