Abstract Submitted
for the TSF10 Meeting of
The American Physical Society

Simulations for the NIFFTE High Precision TPC REMINGTON THORNTON, Abilene Christian University, NIFFTE COLLABORATION — The Neutron Induced Fission Fragment Tracking Experiment has designed a Time Projection Chamber (TPC) to measure neutron induced fission cross-section measurements of the major actinides to sub-1% precision over a wide incident neutron energy range. These measurements are necessary to design the next generation of nuclear power plants. In order to design a TPC capable of making these measurements, a precise simulation was required to ensure better track reconstruction. Using the Geometry And Tracking (Geant4) simulation platform along with standalone code, a complete simulation package has been written. Asynchronous trigger, 3-D charge diffusion, capacitive charge sharing, digitization, random trigger cells, and noise from the electronics have been modeled inside the detector response simulation, along with code that generates bi-products of fission events for Geant4. This talk will discuss the current status and future planned developments of this work including the efforts to make this code reusable for future TPC projects.

Remington Thornton
Abilene Christian University

Date submitted: 21 Sep 2010 Electronic form version 1.4