

Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

Performance of the fissionTPC and the Potential to Advance the Thorium Fuel Cycle RUSTY TOWELL, Abilene Christian University, NIFFTE COLLABORATION — The NIFFTE fission Time Projection Chamber (fissionTPC) is a powerful tool that is being developed to take precision measurements of neutron-induced fission cross sections of transuranic elements. During the last run at the Los Alamos Neutron Science Center (LANSCE) the fully instrumented TPC took data for the first time. The exquisite tracking capabilities of this device allow the full reconstruction of charged particles produced by neutron beam induced fissions from a thin central target. The wealth of information gained from this approach will allow cross section systematics to be controlled at the level of 1%. The fissionTPC performance from this run will be shared. These results are critical to the development of advanced uranium-fueled reactors. However, there are clear advantages to developing thorium-fueled reactors including the abundance of thorium verses uranium, minimizing radioactive waste, improved reactor safety, and enhanced proliferation resistance. The potential for using the fissionTPC to measure needed cross sections important to the development of thorium fueled nuclear reactors will also be discussed.

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Date submitted: 01 Jul 2014

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