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NIFFTE Time Projection Chamber for Fission Cross Section Measurements¹ RYAN CASTILLO, Abilene Christian University, Los Alamos National Laboratory, FOR THE NEUTRON INDUCED FISSION FRAGMENT TRACKING EXPERIMENT COLLABORATION — In order to design safer and more efficient Generation IV nuclear reactors, more accurate knowledge of fission cross sections is needed. The goal of the Time Projection Chamber (TPC) used by the Neutron Induced Fission Fragment Tracking Experiment (NIFFTE) collaboration is to measure the cross sections of several fissile materials to within 1% uncertainty. The ability of the TPC to produce 3D "pictures" of charged particle trajectories will eliminate unwanted alpha particles in the data. Another important source of error is the normalization of data the U-235 standard. NIFFTE will use the H(n,n)H reaction instead, which is known to better than 0.2%. The run control and monitoring system will eventually allow for nearly complete automation and off-site monitoring of the experiment. This presentation will cover the need for precision measurements and an overview of the experiment.

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