

Abstract Submitted
for the DNP17 Meeting of
The American Physical Society

A New Measurement of Neutron Induced Fission Cross Sections

JOSHUA MAGEE, Lawrence Livermore National Laboratory, NIFFTE COLLABORATION — Neutron induced fission cross sections of actinides are of great interest in nuclear energy and stockpile stewardship. Traditionally, measurements of these cross sections have been made with fission chambers, which provide limited information on the actual fragments, and ultimately result in uncertainties on the order of several percent. The Neutron Induced Fission fragment Tracking Experiment (NIFFTE) collaboration designed and built a fission Time Projection Chamber (fissionTPC), which provides additional information on these processes, through 3-dimensional tracking, improved particle identification, and in-situ profiles of target and beam non-uniformities. Ultimately, this should provide sub-percent measurements of (n,f) cross-sections. During the 2016 run cycle, measurements of the $^{238}\text{U}(n,f)/^{235}\text{U}(n,f)$ cross section shape was performed at the Los Alamos Neutron Science Center (LAN-SCE) Weapons Neutron Research (WNR) facility. An overview of the fission TPC will be given, as well as these recently reported results. This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

Joshua Magee
Lawrence Livermore National Laboratory

Date submitted: 30 Jun 2017

Electronic form version 1.4