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Measuring Fission Fragment Mass Distributions as a Function of Incident Neutron Energy Using the fissionTPC[1] JOSHUA GEARHART, University of California, Davis, NIFFTE COLLABORATION — Fission fragment mass distributions are important observables for developing next generation dynamical models of fission. Many previous measurements have utilized ionization chambers to measure fission fragment energies and emission angles which are then used for mass calculations. The Neutron Induced Fission Fragment Tracking Experiment (NIFFTE) collaboration has built a time projection chamber (fissionTPC) that is capable of measuring additional quantities such as the ionization profiles of detected particles, allowing for the association of an individual fragment's ionization profile with its mass. The fragment masses are measured using the previously established 2E method. The fissionTPC takes its data using a continuous incident neutron energy spectrum provided by the Los Alamos Neutron Science CEnter (LANSCE). Mass distribution measurements across a continuous range of neutron energies put stronger constraints on fission models than similar measurements conducted at a handful of discrete neutron energies.

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