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The NIFFTE project

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The NIFFTE project is a double sided fission TPC with micromegas readout that is being developed to measure the energy dependent neutron induced cross sections of the major and minor actinides to an accuracy better than 1%. Our collaboration, a group of 7 universities and 4 national laboratories, has undertaken the task of building the first TPC for this purpose. Neutron-induced fission cross sections have been measured with ionization/fission chambers for decades. To achieve the unprecedented accuracy levels required for applications, however, one needs not only to aggregate statistics but also to address major sources of systematic uncertainties that have plagued previous measurements, such as target and beam non-uniformities, misidentification of alpha/light charged particles and fission fragments, and uncertainties inherent to the reference standards used. In this talk I will present the fission TPC concept, and discuss the performance of the device gleaned from the first data.

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