

Abstract Submitted
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The Gas Handling System Assembly for the NIFFTE TPC DANA DUKE, California Polytechnic State University San Luis Obispo, NIFFTE COLLABORATION — The Neutron Induced Fission Fragment Tracking Experiment (NIFFTE) uses a Time Projection Chamber (TPC) to obtain more accurate measurements of the fission cross sections of radioactive isotopes such as Pu-239, U-235, U-238, etc. Past cross-section measurements have used various detection methods such as the parallel plate ionization chamber, but by using a TPC, accuracy levels can be improved to sub 1% error. Analysis of TPC data will improve the current understanding of fission dynamics and the fission process. The NIFFTE TPC is located at the 90L beam line at LANSCE-WNR where targets are bombarded with fast neutrons to induce fission. The resulting fission fragments are tracked using gas ionization within the TPC. Gas handling system function and assembly is examined and justified. Major components of the system include solenoid valves, pressure transducers, and mass flow controllers. This gas handling system has the capability of remotely controlling the flow of multiple gas sources into the TPC.

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