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Monitoring the Gas Composition of the NIFFTE Time Projection Chamber TRAVIS TOWELL, Abilene Christian University, TRAVIS TOWELL COLLABORATION — The Neutron Induced Fission Fragment Tracking Experiment (NIFFTE) at Los Alamos National Laboratory(LANL) is using a Time Projection Chamber (TPC) to measure with high precision the cross section ratio of U238 to P239. When the neutron beam hits a target, it may emit fission fragments. As the fission fragments travels through the chamber, it ionizes the gas it passes through. Based on the time it takes for the ions to drift to the pad planes and the hit location of the ions, the path of fission fragments can be determined. Knowing the composition of the gas mixture is vital to accurately reconstruct the data. A Binary Gas Analyzer (BGA) is used to measure the gas composition. To confirm the accuracy of the BGA, varying amounts of nitrogen and carbon dioxide were flowed through a test gas system. Several tests were performed to validate that the BGA for our gas system is working properly. This poster will describe the test gas system setup, tests of the BGA, and elaborate on the main goals of the NIFFTE experiment.

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