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Automated Histogram Comparison Improvements for the NIFFTE FissionTPC[1] CHRISTINE CASE, Abilene Christian University, NEUTRON INDUCED FISSION FRAGMENT TRACKING EXPERIMENT COLLABORATION — The Neutron Induced Fission Fragment Tracking Experiment (NIFFTE) collaboration aims to make high-precision ^{239}Pu(n,f)/^{6}Li(n,t)α cross section ratio measurements with quantified systematic uncertainties at Los Alamos National Laboratory. The experiment incorporates fixed targets surrounded by a fission Time Projection Chamber (TPC). This fissionTPC enables 3D reconstruction of tracks from charged particles that ionize the TPC gas. During data collection, shifters inspect dozens of histograms visually to monitor detector performance and data quality. Currently, the Kolmogorov-Smirnov (KS) statistic quantifies histogram similarity. One challenge for applying KS to fissionTPC data is comparing histograms that include spontaneous alpha decay background and beam induced events that depend on beam intensity. Thus, the NIFFTE software is being updated with additional automated histogram comparisons. This presentation will include updates and modifications to the previous KS statistic and the new automatic histogram comparison program.

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