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**TPC tracking software for NIFFTE: the Neutron Induced Fission Fragment Tracking Experiment** RYUHO KUDO, J.L. KLAY, California Polytechnic State University, San Luis Obispo, NIFFTE COLLABORATION — Ever since the scientific community started analyzing and filtering data using computers, programming has become a crucial part for the success of many projects. The NIFFTE Collaboration, which is building a Time Projection Chamber (TPC) to study neutron-induced fission of the major actinides, naturally requires a comprehensive software framework to analyze the high volume of data it will collect. Following the traditional TPC reconstruction model, we have written a set of offline analysis algorithms to reconstruct tracks left by the fission fragments in the TPC and determine their  $(A,Z)$ . We accomplish this by organizing the raw TPC voxel data into 2 dimensional planes, performing cluster and hit-finding within those planes and then connecting the hits to create 3-D tracks. Finally, track fitting and error correction are performed and the fragment  $A,Z$  are determined from the distribution of specific ionization along the track. Since one of the goals of this project is to create a re-usable library of TPC reconstruction code that can be adapted to other TPC projects, the software uses open source tools and is built as an object-oriented package in C++. This poster will present the current status of the TPC reconstruction algorithms and discuss the motivations behind our specific programming choices.

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