

Abstract Submitted
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Development of a NIFFTE clean glove box WILLIAM LYNN, Abilene Christian University, NIFFTE COLLABORATION — The Neutron Induced Fission Fragment Tracking Experiment (NIFFTE) uses a Time Projection Chamber (TPC) to measure the probability that a fission reaction will occur when an actinide target, such as Uranium or Plutonium, is struck with a beam of neutrons. If a fission reaction occurs, the resulting fission fragments travel through the TPC and are detected by the read-out electronics. This information is then used to construct a 3-D representation of the fission fragment as it travelled through the TPC. In order to protect workers from any radiation hazards associated with Plutonium targets, the targets must be installed in the TPC from within a glove box. The internal structure of the TPC is extremely sensitive to small amounts of dust and this necessitates that the TPC be disassembled and reassembled in a cleanroom environment. To satisfy both of these conditions, a decision was made to modify an existing glove box to produce a cleanroom environment with fewer than 10 particles (dust, etc.) per cubic foot inside of it. Variables such as glove type, filter, and cleaning agent were tested independently to determine maximum cleanliness, and a procedure for creating an acceptable environment inside the glove box for the TPC was developed.

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