

Abstract Submitted
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Calibration and Installation of the UConn O-TPC at TUNL.
ALEXANDER YOUNG, T. KADING, P. SEO, M. GAI, C. HOWELL, E. CLINTON, H. WELLER, S. STAVE, M. AHMED, V. DANGENDORF, K. TITTELMEIER — An Optical Readout Time Projection Chamber (O-TPC) will be used in an experiment at the HIGS facility at TUNL for studying oxygen formation during stellar helium burning. The calibration of the O-TPC was carried out at the LNS at Avery Point and subsequently the detector was transferred to the TUNL lab at Duke in August 2007. A variety of pre-amplifiers and high voltage power supplies were tested and under stable conditions an energy resolution as good as 3.0% was found in the charge signal. Charge and light gain curves were obtained using a ^{148}Gd source and a 75 mm diameter PMT placed at approximately 85 cm. These determined the optimal conditions for operating the O-TPC. Under the optimized conditions a CCD camera was used to capture images of single and double tracks of alpha particles from a ^{148}Gd source. The 3.18 MeV alpha particles yielded tracks containing only 40-50 photo electrons due to the small lens currently in use. The calibration results obtained at UConn were reproduced at the TUNL lab after the detector was installed at TUNL and it is being prepared for accepting beams from the HIGS facility.

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