

Abstract Submitted  
for the DNP07 Meeting of  
The American Physical Society

**Parallel plate ionization chamber in low pressure helium gas** D. FRANK, A. HEINZ, R. WINKLER, J. QIAN, R.J. CASPERSON, J.R. TERRY, Wright Nuclear Structure Lab, Yale University — A parallel plate ionization chamber was constructed for beam intensity monitoring. The chamber is placed in a gas-filled volume 1.5m upstream from the gas-filled separator SASSYER. Its output current will be used to determine absolute reaction cross sections. In a dedicated test experiment with a 100 MeV  $^{32}\text{S}$  beam and an applied potential of 300V, the signal current had an average standard deviation of 0.4%, and demonstrated a linear relationship ( $R^2 = 0.9894$ ) with the beam intensity. Also, at an intensity of 6 particle nanoamperes, the current exhibited a linear dependence ( $R^2 = 0.9813$ ) on voltage, indicating that the chamber was operating in the proportional counter region. Our results agreed well with predictions made using extrapolated Townsend coefficients, though we observed a constant systematic and constant deviation between these estimates and our output current. This work was supported under US DOE grant number DE-FG0291ER-40609 and the Yale College Dean's Fellowship for Research in the Sciences.

D. Frank  
Wright Nuclear Structure Lab, Yale University

Date submitted: 02 Aug 2007

Electronic form version 1.4