

Abstract Submitted
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Beam-Background Gas Total Cross-Section Measurements with a Retarding Field Analyzer¹ M. KIREEFF COVO, LLNL and UCB, A.W. MOLVIK, A. FRIEDMAN, R. COHEN, LLNL, J-L. VAY, F. BIENIOSEK, D. BACA, P.A. SEIDL, LBNL, J. VUJIC, UCB — The High-Current Experiment (HCX) at LBNL is a driver scale single beam injector that provides a 1 MeV K^+ ion beam current of 0.2 A during 5 μs for high energy density physics and heavy ion fusion. We developed a new technique to measure the beam-background gas total cross-section in a high-current accelerator using a retarding field analyzer. The beam-background gas interaction will produce cold ions by ionization and charge exchange. The ions are radially expelled in few hundreds of microseconds by the space-charge beam potential of ~ 2000 V. Due to the lack of data in the literature at the energy range of interest (1 MeV K^+), we intentionally leaked different gases and measured the total cross-sections. The experimental data will be compared with theoretical predictions.

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