Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Ion Beam Scattering by Background Helium[1] ANNE GRILLET, THOMAS HUGHES, JEREMIAH BOERNER, Sandia National Laboratories — The presence of background gases can cause charged particle beams to become more diffuse due to scattering. Calculations for the transport of an ion beam have been performed using Aleph, a particle-in-cell plasma modeling code, and verified against a general envelop equation for charged particle beams. We have investigated the influence of background helium on the coherence and transmitted current of the ion beam. Collisions between ions and neutral particles were calculated assuming isotropic elastic scattering. Since this tends to predict larger scattering angles than are expected at high energies, these are conservative estimates for beam scattering.

[1]Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration.

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Date submitted: 23 Jul 2015 Electronic form version 1.4