

Abstract Submitted  
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**Simulation of Magnetic Field Guided Plasma Expansion** FRANS EBERSOHN, J.P. SHEEHAN, ALEC GALLIMORE, University of Michigan, JOHN SHEBALIN, NASA Johnson Space Center — Magnetic field guided expansion of a radio-frequency plasma was simulated with a quasi-one-dimensional particle-in-cell code. Two-dimensional effects were included in a one-dimensional particle-in-cell code by varying the cross-sectional area of the one dimensional domain and including forces due to the magnetic field. Acceleration of electrons by the magnetic field forces leads to the formation of potential structures which then accelerate the ions into a beam. Density changes due to the plasma expansion only weakly affect the ion acceleration. Rapidly diverging magnetic fields lead to more rapid acceleration and the electrons cool as they expand.

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