

Abstract Submitted
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Investigations of axisymmetric mirror boundary conditions using Reconnection Scaling Experiment¹ T.P. INTRATOR, Los Alamos Natl Lab, P-24 Plasma Physics, R.J. OBERTO, T.D. OLSON — Axisymmetric magnetic mirrors such the Gas Dynamic Trap (GDT) concept do not need complex and expensive minimum B magnetic coil structures to enhance MHD stability. GDTs and related mirror designs typically contain a large end loss region region of flared and expanding magnetic field lines between a mirror coil and an end cell with radial and axial end walls. This end loss region can furnish pressure weighted good curvature field line forces that stabilize MHD behavior, and also provide electrostatic sheaths that confine electron heat loss. Investigations of axial boundary conditions will be useful to determine how and why MHD stability can be enhanced, and how to improve confinement of electron heat flux. The Reconnection Scaling Experiment (RSX) has been used to for a wide range of conditions in an MHD relevant experiment. We have demonstrated a continuous range of adjustability between line tied (fixed) and non line tied (free) axial boundary conditions.

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T.P. Intrator
Los Alamos Natl Lab, P-24 Plasma Physics

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