Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

Formation of collisionless high-beta plasmas by application of odd-parity rotating magnetic fields[1] S.A. COHEN, B. BERLINGER, C. BRUNKHORST, A. BROOKS, N. FERRARO, D.P. LUNDBERG, A. ROACH, Princeton Plasma Physics Laboratory, A.H. GLASSER, Los Alamos National Laboratory — Odd-parity rotating magnetic fields (RMF_o) have been applied to mirror-configuration plasmas in a device of 4-cm radius, defined by discrete co-axial copper-ring flux conservers, and with divertor chambers beyond both mirrors. At an applied RF power of 10 kW and a bias field of 50 G, line-averaged electron density of 1e12 cm^{-3} and excluded flux of 0.005 mVs have been sustained for over 0.5 ms, corresponding to a Coulomb collisionality of < 0.02. The divertors allow reduction of the electron-neutral collision frequency to similarly low levels. Under such conditions, measurements of RMF_o coupling indicate full penetration of the RMF_o to the major axis.

[1]This work was supported, in part, by U.S. Department of Energy Contract No. DE-AC02-76-CHO-3073.

S.A. Cohen
Princeton Plasma Physics Laboratory

Date submitted: 23 Jul 2006 Electronic form version 1.4