

Abstract Submitted
for the APR06 Meeting of
The American Physical Society

Study of a simulated sustained edge-current driven spheromak in SSPX geometry¹ LYNDA LODESTRO, B.I. COHEN, E.B. HOOPER, Lawrence Livermore National Laboratory, C.R. SOVINEC, University of Wisconsin — The sustainment of current in the core of a toroidal plasma by electrostatic edge-current drive requires the radial transport of current across imperfect magnetic surfaces. Full sustainment concurrent with adequate energy confinement has been difficult to find either experimentally or numerically. A NIMROD simulation in SSPX geometry with fixed bank current has recently been extended to nearly an L/R time, and exhibits apparent steady-state cycles with time-averaged sustainment: intervals of closed surfaces and peaked temperature profiles, punctuated by short bursts with voltage spikes and open surfaces. The confinement properties of this simulation will be analysed, and results presented.

¹Work performed under auspices of the U.S. DOE by U. California LLNL under Contract No. W-7405-ENG-48.

Lynda LoDestro
Lawrence Livermore National Laboratory

Date submitted: 17 Jan 2006

Electronic form version 1.4