

Abstract Submitted  
for the DPP05 Meeting of  
The American Physical Society

**Plans for SSPX Experiments with Auxiliary Heating and Multipulse Helicity Injection**<sup>1</sup> D.N. HILL, T.A. CASPER, B.I. COHEN, E.B. HOOPER, M.M. MARCHIANO, H.S. MCLEAN, J. MOLLER, C. ROMERO-TALAMAS, R.D. WOOD, Lawrence Livermore National Laboratory — Recent results from the SSPX spheromak, in which peak electron temperatures  $T_e \sim 350\text{eV}$  were obtained, provide strong motivation for adding auxiliary heating to study energy transport and pressure limits. At 300eV, 1.8MW of neutral beam injection (NBI) heating would match the ohmic heating in the core plasma to provide a known and controlled heat source for the first time in a spheromak. The addition of NBI would follow by about a year the commissioning of a new modular solid-state programmable capacitor bank late in CY2006. The modular bank will allow multi-pulse operation, extend the buildup time for slowly building discharges, and lengthen the high-current formation pulse in SSPX, all of which are aimed at increasing the magnetic field produced by coaxial helicity injection. The schedule for proposed upgrades and plans for experimental campaigns using the modular bank and NBI heating systems will be discussed.

<sup>1</sup>This work performed under the auspices of the USDOE by LLNL under contract 7405-Eng-48.

David Hill  
Lawrence Livermore National Laboratory

Date submitted: 18 Aug 2005

Electronic form version 1.4