Abstract Submitted
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Simulation of Planned Neutral Beam Heating Experiments in SSPX[1] R.L. FOSTER, US Naval Academy, D.N. HILL, L.D. PEARLSTEIN, T.A. CASPER, Lawrence Livermore National Laboratory, Livermore, CA 94551 — Recent results from the SSPX spheromak (peak Te 350eV) provide strong motivation for adding auxiliary heating to study energy transport and pressure limits. We are now procuring two 25keV 900kW neutral beam sources from Budker Institute in Russia. In parallel, we are using the CORSICA transport code to examine the effect of beam input geometry of the efficiency of neutral beam heating in a spheromak such as SSPX. A new fast-ion orbit-following algorithm was recently added to CORSICA to account for the low field, low aspect-ratio magnetic topology of the spheromak configuration [1]. We find a significant increase in fast ion confinement and subsequent plasma heating as the injection angle moves from strictly radial to more tangential injection. Variation of the heating rate with magnetic field, plasma density, and confinement time were also examined. The schedule for proposed beam installation and development of suitable target plasmas and diagnostics also will be presented. [1] L.D. Pearlstein, et al., Proceedings 33rd EPS Conf. on Plasma Physics, Rome (2006)

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