Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Overview of HSX Results and Experimental Program Plan[1] D.T. ANDERSON[2], HSX Plasma Laboratory, University of Wisconsin-Madison — HSX has recently begun operations at B=1.0 T employing fundamental ECRH at 28 GHz. T_{e0} of up to 2.5 keV and τ_E up to 5 ms have been observed with 100 kW of injected power. Significant wall conditioning has been necessary for density control under these conditions. Improvements in confinement due to quasisymmetry are observed, as at B=0.5T operation. Fundamental heating has resulted in increased plasma density (up to $<n_{el}> \sim$ 6 x 10^{18} m^3) and a significant reduction in the non-thermal population. The MHD mode which appears driven by the precession of deeply trapped energetic electrons produced by second harmonic heating is no longer observed. The GNET and CQL3D codes are being used to understand the differences in the electron distribution functions between fundamental and 2^{nd} harmonic heating in both QHS and mirror configurations. A key element of the HSX program is investigation into the role of low effective ripple on anomalous transport. Knowledge of the radial electric field is needed to calculate the neoclassical transport. Two systems are in development to provide this data: a CHERS system based on a DNB on loan from MST, and a novel HIBP system on loan from RPI.

[1]Work supported by US DoE Grant DE-FG02-93ER54222.
[2]for the HSX Team.

David Anderson
HSX Plasma Laboratory, University of Wisconsin-Madison

Date submitted: 24 Jul 2007 Electronic form version 1.4