

Abstract Submitted
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Overview of HSX Stellarator Experiments¹ K.M. LIKIN, D.T. ANDERSON, F.S.B. ANDERSON, A.R. BRIESEMEISTER, D.L. BROWER, C.A. CLARK, C.R. COOK, C. DENG, J. LORE, J.W. RADDER, J.C. SCHMITT, J.N. TALMADGE, G.M. WEIR, R.S. WILCOX, K. ZHAI, UW-Madison, WI — HSX is operating at 1 T with ECRH injected power up to 100 kW. An internal transport barrier (ITB) with a very peaked T_e profile has been observed. The working hypothesis on ITB is a suppression of the turbulent transport in the region of strong shear of the radial electric field as predicted by neoclassical theory. A second ECRH system with a steerable launcher has been installed. The RF power modulation from the second source will allow us to measure the local thermal diffusivities. The first measurements of large flows in the direction of symmetry have been made with a CXRS diagnostic. Measurements of plasma currents show their reduced value by the high effective transform. Work is now proceeding on 3D equilibrium reconstruction of the current profile. Long-range correlations are measured during electrode biasing. A laser blow-off technique is under development to inject impurities into the plasma, and the transport characteristics will be determined from spectroscopic measurements and modeling. Ion cyclotron resonance heating is being examined as a route to increased density and ion temperatures.

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