

Abstract Submitted  
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**Overview and New Directions for the HSX Program**<sup>1</sup> DAVID ANDERSON<sup>2</sup>, HSX Plasma Laboratory, University of Wisconsin-Madison — Large intrinsic flows have been measured by CHERS in the direction of quasisymmetry. A new 80-coil internal array has been designed and installed for improved equilibrium reconstruction and resolution of the bootstrap current. A motional Stark effect diagnostic is being implemented to directly measure radial electric field profiles in the core, with currents inferred from magnetic field pitch measurements. Edge probe measurements show the Reynolds stress may play an important role in the edge poloidal momentum balance. Impurity transport experiments have begun using laser blow-off. Edge and fuelling studies are carried out with comparisons between experimental measurements and modeling using the DEGAS and EMC3-EIRENE codes. These codes guide new experimental studies of the divertor structure in HSX. A second ECRH system with beam steering and modulation and an upgraded ECE system are used for heat pulse propagation studies, with results compared to gyrokinetic calculations. Efforts are underway to determine and experimentally test elements in the magnetic structure which can be optimized to reduce anomalous transport.

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