Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Measurements of Edge Plasma Properties in the HSX Stellarator with Comparison to EMC3-EIRENE[1] A.R. AKERSON, A. BADER, O. SCHMITZ, F.S.B. ANDERSON, C.C. HEGNA, D.T. ANDERSON, University of Wisconsin — 2D profiles of plasma edge temperature, density and flow have been obtained in the edge of the Helical Symmetric Experiment (HSX) using a multi-pin Langmuir probe. Comparison of these profiles with a 3D edge fluid and kinetic neutral transport model (EMC3-EIRENE) show significant deviations. In particular, measurements show peaked density profiles within the edge magnetic island and sonic flows near the island X-point. The origin of these discrepancies is under investigation and may be related to prominent potential structures observed within the island. These observations are important because the presence of potential structures and corresponding ExB flows are not included in the EMC3-EIRENE modeling, necessitating further investigation to understand the origin and impact that these structures have on edge plasma properties.

[1]This work supported by US DOE Grant DE-FG02-93ER54222.

Adrian Akerson
University of Wisconsin

Date submitted: 11 Jul 2014 Electronic form version 1.4