

Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Evolution of intrinsic flows and radial electric field in HSX stellarator¹ T. J. DOBBINS, S. T. A. KUMAR, J. N. TALMADGE, K. M. LIKIN, F. S. B. ANDERSON, D. T. ANDERSON, Univ of Wisconsin, Madison — The in-board/outboard asymmetry in impurity ion flow on the HSX stellarator is measured by the Charge Exchange Recombination Spectroscopy (CHERS) diagnostic. This allows the calculation of the bootstrap and Pfirsch-Schluter flows on a flux surface. The evolution of bootstrap flows has been measured in the HSX stellarator and compared with the evolution of bootstrap current. The flow evolution was found to be dependent on magnetic configuration and plasma parameters, while the electric field was found to be constant in time. With 50 kW ECRH heating, the bootstrap flow decreased from 13 to 8 km/s from the beginning to the end of the discharge in the core of the plasma (r/a of .2) while the electric field remained constant at 2.5 kV/m. The Pfirsch-Schluter flow measurements are used to find the radial electric field. These measurements of radial electric field are compared the neoclassical values calculated by the PENTA[1]. [1] J. Lore et al., Phys. Plasmas 17 (2010) 056101

¹Work supported by the US DOE under grant DE-FG02-93ER54222

Tom Dobbins
Univ of Wisconsin, Madison

Date submitted: 14 Jul 2017

Electronic form version 1.4