

Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Modulated Heating Experiments on the HSX Stellarator¹ G.M. WEIR, K.M. LIKIN, F.S.B. ANDERSON, J.N. TALMADGE, D.T. ANDERSON, HSX Plasma Lab, University of Wisconsin - Madison — Modulated heating experiments with a new ECRH system on the HSX stellarator are used to determine the electron thermal diffusivity from the dynamic response of the electron temperature using the Electron Cyclotron Emission (ECE) diagnostic. The new ECRH system has a poloidally steerable mirror that is capable of depositing energy across the minor radius and refraction of the heating beam leads to differences in the width of the absorbed power profile compared to the primary ECRH system. The ECE requires modeling to determine the electron temperature due to finite reflectivity and optical depth and analysis of the optically gray emission will be presented along with hardware upgrades and the absolute calibration of the 16-channel heterodyne radiometer. Initial measurements yield an incremental thermal diffusivity consistent with the power-balance value in the core of HSX and analysis of these heat pulse propagation results will be presented.

¹Supported by USDOE Grant DE-FG02-93ER54222.

Gavin Weir
HSX Plasma Lab, University of Wisconsin - Madison

Date submitted: 18 Jul 2012

Electronic form version 1.4