

Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Spectroscopic Measurements of Electron Temperature on the University of Texas at Austin Argon Helicon Experiment¹ ELLA M. SCIAMMA, ROGER D. BENGTON, W.L. ROWAN, The University of Texas at Austin, AMY M. KEESEE, West Virginia University, CHARLES A. LEE, DAN BERISFORD, The University of Texas at Austin — Absolutely calibrated spectroscopic measurements of the argon plasma in the helicon experiment at UT were used to estimate the electron temperature in the plasma core under the antenna. The helicon antenna was operated at 13.56 MHz with 1 kW absorbed power. Langmuir probe measurements of the electron density were used in a collisional-radiative model simulation^[1] to estimate the electron temperature from argon ion (Ar II) line intensities. An electron temperature of 3.3 eV was obtained, agreeing with the Langmuir probe measurements. Argon neutral (Ar I) lines were then used with a second collisional-radiative model^[2] to estimate the neutral density.

[1] <http://adas.phys.strath.ac.uk>

[2] Amy. M. Keesee and Earl E. Scime. Rev. Sci. Instrum. 77, 10F304 (2006)

¹Work supported by Ad Astra Rocket Company and the Department Of Energy Office of Fusion Energy Science DE-FG03-00ER54609.

Ella M. Sciamma
The University of Texas at Austin

Date submitted: 12 Jul 2007

Electronic form version 1.4