

Abstract Submitted  
for the DPP10 Meeting of  
The American Physical Society

**Quantitative assessment of RF sheath rectification in Alcator C-Mod with emissive, b-dot, and ion sensitive probes**<sup>1</sup> ROMAN OCHOUKOV, DENNIS WHYTE, BRUCE LIPSCHULTZ, BRIAN LABOMBARD, STEPHEN WUKITCH, MIT — Radio frequency (RF) rectification of the plasma sheath is currently being studied as a possible mechanism that leads to prohibitively high molybdenum levels in the plasma core of RF heated discharges in the Alcator C-Mod tokamak. We installed emissive, ion sensitive, and 3D b-dot probes to quantify the presence of RF sheaths in RF heated Alcator C-Mod plasma discharges on surfaces magnetically connected to the active RF antenna. Two probe sets were mounted on fixed limiter surfaces and one set of probes was mounted on a reciprocating (along the major radius) probe, the Surface Science Station. Preliminary results showed that RF rectification of the plasma sheath correlated with the local plasma density with little to no correlation to the local RF fields. Plasma density scans also revealed a threshold-like appearance of the RF sheaths above a certain plasma density value. The strongest RF sheath potentials were observed on magnetic field lines directly mapped to the active RF antenna.

<sup>1</sup>Supported by USDoE award DE-FC02-99ER54512.

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Date submitted: 17 Jul 2010

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