

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Comparison of Two Microwave and Two Probe Methods for Measuring Plasma Density SCOTT KNAPPMILLER, SCOTT ROBERTSON, ZOLTAN STERNOVSKY, University of Colorado at Boulder — Four types of electron density measurements are compared: cylindrical probe, disk probe, microwave cavity, and microwave hairpin. The measurements are made in hot-filament discharges in soup-pot types of plasma devices with and without multidipolar surface magnetic fields. The hairpin and cylindrical probe gave densities which were in close agreement for all conditions with an average error of 7 percent. The cavity measurement was consistently higher (40 percent on average), perhaps as a result of higher density near the filaments. The disk probe was in good agreement with the cylindrical probe and hairpin for plasmas without multidipolar containment, but with multidipolar containment gave densities 21 percent higher on average, perhaps as a result of the higher density of secondary electrons within the plasma.

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Date submitted: 18 Jul 2005

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