

Abstract Submitted
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Frequency dependent spatial distributions of the electrons in a 300 mm diameter VHF capacitively coupled plasmas GREG HEBNER, Sandia National Laboratories, E. BARNAT, P. MILLER, A. PATERSON, J. HOLLAND, T. LILL, SANDIA NATIONAL LABORATORIES TEAM, APPLIED MATERIALS TEAM — The characteristics of VHF capacitively coupled Argon plasmas produced in a modified 300 mm diameter chamber have been investigated. The chamber had a 14-inch diameter upper electrode (source) that was driven at 10 to 196 MHz. The spatial distribution of the electrons is observed to change with the frequency of the applied rf drive. As the frequency was increased, the electron spatial distribution went from approximately uniform across the electrode diameter to peaked in the center. These results will be compared with our previous measurements of the line integrated electron density obtained from microwave interferometry and Abel inverted optical emission measurements. Scaling of the plasma parameters with frequency, power and pressure, and implications to energy deposition models will be discussed. This work was supported by Applied Materials and Sandia National Laboratories, a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company for the United States Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

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