

Abstract Submitted
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Frequency probe measurements of electron density, plasma potential, and electron energy distribution in processing plasmas¹ DAVE BORIS, RICHARD FERNSLER, SCOTT WALTON, Naval Research Laboratory — RF frequency probes are an attractive alternative to Langmuir probes due to their ability to measure electron density in reactive and depositing plasma chemistries. In addition, frequency probes provide the same variety of plasma parameters for which Langmuir probes are used (plasma density, electron temperature, plasma potential and electron energy distributions). This work presents frequency probes measurements of plasma density over a range of 10^9 to 10^{12} cm^{-3} in a variety of processing plasma chemistries (N_2 , CH_4 , NH_4 , O_2 and SF_6). This work also features high resolution energy distribution function measurements using RF frequency probes which investigate the effects of molecular gases on electron energy distributions.

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