

Abstract Submitted
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Considerations in Comparing Experimental Results and Theory of Biased Impedance Probes¹ DAVID BLACKWELL, DAVID WALKER, Plasma Physics Division, United States Naval Research Laboratory, RICHARD FERNSLER, United States Naval Research Laboratory (ret), ERIK TEJERO, AMI DUBOIS, CARL ENLOE, GEORGE GATLING, WILLIAM AMATUCCI, Plasma Physics Division, United States Naval Research Laboratory — This presentation discusses two outstanding problems that have been present for a number of years in the Space Physics Simulation Chamber group’s work on impedance probes. These are, (a) impedance curves indicative of a much higher energy absorption than can be accounted for using standard collision models given the plasma parameters, and (b) divergence at low frequency between predicted and measured impedance curves using our linear model. We compare numerical results of our different models to experimental data to determine under what conditions such models are valid and what areas are in need of improvement. It is our hope that defining and presenting these problems in a systematic method will help focus future theoretical and experimental efforts in impedance probe research.

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David Blackwell
United States Naval Research Laboratory

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