

Abstract Submitted  
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**Generalization and Verification of RF Sheath Microscale Models<sup>1</sup>**

J. R. MYRA, Lodestar Research Corp., D. CURRELI, M.T. ELIAS, Univ. of Illinois, Champaign, T. G. JENKINS, Tech-X Corporation — RF sheaths in the ICRF range of frequencies are studied on the micro- (Debye length) scale with the goal of improving the RF sheath boundary conditions used in macroscale global RF wave codes. Previous microscale models based on nonlinear fluid theory are extended in parameter space to higher frequencies for oblique magnetized sheaths that carry net DC current. Results for the rectified (DC) sheath potential and sheath impedance are compared with PIC simulations from the hPIC and Vorpel codes. In addition to their role in verification, the PIC codes also provide additional information such as the role of finite ion temperature, sources and the particle impact energy and angle distributions for sputtering and surface interaction physics.

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