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**Ion Energy Distributions in Pulsed Inductively-Coupled Plasmas Having a Pulsed Boundary Electrode**[1] MICHAEL D. LOGUE, U. Michigan, H. SHIN, W. ZHU, L. XU, V.M. DONNELLY, D.J. ECONOMOU, U. Houston, M.J. KUSHNER, U. Michigan — In applications requiring energetic ions, such as plasma etching, the time averaged ion energy distribution (IED) to surfaces is most important. In these situations, pulsed plasmas can be used to piece together the desired IED from different times during the power pulse. Such control of IEDs in inductively coupled plasmas (ICPs) can be obtained using a boundary electrode with a continuous or pulsed dc bias. The resulting shift in the plasma potential modifies the IEDs without significant changes in the bulk plasma. Pulsing the ICP provides additional control. In this paper we discuss results from a computational investigation of IEDs to surfaces in low pressure ICPs sustained in argon and $Ar/H_2$. The investigation was conducted using the Hybrid Plasma Equipment Model with which electron energy distributions and the IEDs are obtained using Monte Carlo simulations. ICP power and boundary voltage are applied in continuous and pulsed formats. Results for EEDs and IEADs are compared to experimental data. We find the IEDs have two peaks that can be controlled with the duration of the pulsing and relative magnitude of the boundary bias.

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Mark J. Kushner
U. Michigan

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