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Abstract for an Invited Paper
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Control of ion energy distributions on plasma electrodes¹

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Control of the energy of ions bombarding a substrate is important for both plasma etching and deposition. As device dimensions keep shrinking, requirements on selectivity and substrate damage become ever more stringent. Such requirements impose strict limits not only on the mean ion energy, but also of the ion energy distribution (IED). Methods to control the IED will be presented and discussed from both experimental and simulation points of view. Such methods include (a) application of tailored voltage waveforms on the substrate electrode in *continuous wave plasmas*, and (b) application of synchronous bias on a “boundary electrode” during a specified time window in the afterglow of *pulsed plasmas*. Simulations employing the PIC-MCC method, and a rapid simulation based on an equivalent circuit model will be presented and tested against experimental observations. The “inverse problem”, i.e., that of determining the voltage waveform that yields a desired IED, will also be discussed.

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