

Abstract Submitted
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Measuring the Ion Flux to Deposition Substrate in Hollow Cathode Plasma Jet¹ PETR VIROSTKO, ZDENEK HUBICKA, PETR JELINEK, MARTIN CADA, PETR ADAMEK, Institute of Physics of the Academy of Sciences of the Czech Republic, v. v. i., MILAN TICHY, Charles University in Prague — Different electrical methods of obtaining negative bias of deposition substrate and measuring the resulting positive ion flux in DC and DC pulsed hollow cathode plasma jet deposition system are compared. Ion fluxes are determined for pulse-modulated and continuous RF (13.56 MHz), and for pulsed DC bias of the substrate for different bias and discharge conditions. An electrical model of the feed line to the substrate is proposed to determine RF current and voltage waveforms on the RF biased substrate from the waveforms measured outside of the reactor chamber. The resulting RF current waveforms are compared to a fluid numerical model of an RF biased electrode. The ion fluxes determined from the discharging of capacitor in series with the substrate in pulse-modulated RF bias are comparable with those measured for pulsed DC bias, while ion fluxes determined for continuous RF bias differ significantly. Possible explanations of this discrepancy are discussed.

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