

Abstract Submitted
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Extension of CCP DC Self Bias Models To The Case of Fractional Diversion of Powered Electrode Current to Ground D.L. KEIL, E. AUGUSTYNIAK, E. DORAI, F. GALLI, Lam Research Corp. — In many commercial CCP plasma process systems the DC-self bias is available as a reported process parameter. Since commercial systems typically limit the number of onboard diagnostics, there is great incentive to understand how DC-self bias can be expected to respond to various system perturbations. This work examines the effect on DC-self bias due “bleeding” DC current to ground through an RF filter and resistor. By extending the work of Y.P. Song et.al. [1] a relationship between this bleed current and DC bias is developed that predicts DC-self bias change in terms of electrode areas and the Bohm currents to each electrode. Additionally, a circuit model is also presented which gives similar results. These models are then compared to experimental results, with model fit values providing an experimental measure of electrode areas and Bohm currents.

[1] Y.P. Song, D. Field and D.F. Klemperer, J. Phys. D Appl. Phys 23 (1990) pgs 673-681

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