

Abstract Submitted
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Skin effect in an asymmetrical, capacitive discharge MICHAEL KLICK, Plasmetrex GmbH, D12489 Berlin, Germany, TORBEN HEMKE, THOMAS MUSSENBROCK, RALF PETER BRINKMANN, Ruhr University Bochum, D44780 Bochum, Germany — The electrostatic approximation assumption reduces the set of Maxwell's equations to the much simpler Poisson equation and is often employed for modeling and simulation of radio frequency driven capacitive low pressure discharges. It is now widely acknowledged that the neglect of induction phenomena breaks down for large-area and high-density plasmas. But there is still a lack of analytical models which allow an easy handling and understanding of the skin effect in asymmetrical systems. We present an electrodynamic 2d model for a cylindrical, asymmetrical CCP. We use a simplified boundary condition for the RF current density to achieve a considerable simplification of the mathematical approach. Thus the sheath at the driven electrode can be included readily. Advantages and restrictions of the analytical solution are discussed in comparison to numerical simulation results.

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