

Abstract Submitted
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A zero dimensional model of microwave induced coaxial surface wave discharge fed with hexamethyldisiloxane/oxygen¹ EFE KEMANECI, RALF PETER BRINKMANN, Institute for Theoretical Electrical Engineering, Ruhr-University Bochum, Germany, FELIX MITSCHKER, PETER AWAKOWICZ, Institute for Electrical Engineering and Plasma Technology, Ruhr-University Bochum, Germany — A zero-dimensional global model is developed to analyse a microwave induced coaxial discharge of hexamethyldisiloxane/oxygen. The wall flux is analytically estimated and the model is validated by comparing against a variety of measurements for a feeding gas of argon or oxygen. Ion wall flux significantly contributes to the net loss rate of the positive ions. A primary chemical kinetics is added to the oxygen study to investigate the characteristics of the plasma with admixture ratio of 50:100 (HMDSO/O₂). Even though the dominant background gas is oxygen, the simulations suggest that the highest positive ion concentration belongs to Si₂OC₅H₁₅⁺ that is also confirmed by measurements. The simulation results are compared with existing measurements and an agreement is obtained.

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