

Abstract Submitted
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Modeling of high-frequency driven discharges at medium and high pressure PHILIPP MERTMANN, STEFAN BIENHOLZ, PETER AWAKOWICZ, Ruhr-University Bochum, AEPT, THOMAS MUSSENBROCK, RALF PETER BRINKMANN, Ruhr-University Bochum, TET, INSTITUTE FOR PLASMA TECHNOLOGY TEAM, INSTITUTE FOR THEORETICAL ELECTRICAL ENGINEERING TEAM — Since the end of the 1980s the interest in non-thermal plasmas at medium and high pressure is rapidly growing. Particularly diffuse homogeneous glow discharges are of great interest not only in the scientific context. Due to their enormous potential for technological applications these non-equilibrium discharges have drawn considerable attention. However, the number of contributions to systematical modeling and simulation of high-pressure glow discharges is small. To study the dynamics of such discharges we propose a model of a capacitive discharge for the medium-pressure and the high-pressure regime. The model consists of a set of simplified fluid equations for each charged species coupled self-consistently to Poisson's equation using the method of matched asymptotic expansion. First simulation results for the dynamics of the plasma sheath will be discussed.

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