

Abstract Submitted
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2-dimensional simulations of electrically asymmetric capacitively coupled RF-discharges¹ SEBASTIAN MOHR, JULIAN SCHULZE, EDMUND SCHUENGEL, UWE CZARNETZKI, Ruhr-University Bochum — Capacitively coupled RF-discharges are widely used for surface treatment like the deposition of thin films. For industrial applications, the independent control of the ion flux to and the mean energy of the electrons impinging on the surfaces is desired. Experiments and 1D3v-PIC/MCC-simulations have shown that this independent control is possible by applying a fundamental frequency and its second harmonic to the powered electrode. This way, even in geometrically symmetric discharges, as they are often used in industrial reactors, a discharge asymmetry can be induced electrically, hence the name Electrical Asymmetry Effect (EAE). We performed 2D-simulations of electrically asymmetric discharges using HPEM by the group of Mark Kushner [1], a simulation tool suitable for simulating industrial reactors. First results are presented and compared to previously obtained experimental and simulation data. The comparison shows that for the first time, we succeeded in simulating electrically asymmetric discharges with a 2-dimensional simulation.

[1] M. Kushner J. Phys. D: Appl. Phys. 42 (2009) 194013

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