A FIRST LOOK INTO PLASMA-PLASMA INTERACTION AT ATMOSPHERIC PRESSURE VIA NUMERICAL SIMULATION*

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The micro plasma array developed by J.G. Eden and co-workers consists of a matrix of hollow cathode discharges of the size of a few ten micro meters. A silicon substrate with inverse pyramidal cavities is used as one electrode. The second electrode, separated by a dielectrica, covers the space between cavities. The whole structure is covered with a second dielectric layer. The discharges are driven by a sinusoidal voltage at a frequency of 10-100kHz in atmospheric pressure Argon. Experiments performed by Schulz-von der Gathen and co-workers show strong interactions between the the micro discharges[2]. The fundamental phenomenon is still unclear. This contribution is intended to show a first look into the modeling and simulation of micro plasma array and the plasma-plasma interaction.

1. S.-J. Park, J. Chen, C. J. Wagner, N. P. Ostrom, C. Liu and J.G. Eden, IEEE J. Sel. Top. Quantum Electron 8, 387 (2002)
2. V. Schulz-von der Gathen et al., private communication

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