Abstract Submitted
for the GEC10 Meeting of
The American Physical Society

A global model of a micro atmospheric pressure plasma jet ALEXANDER WOLLNY, TORBEN HEMKE, DENNIS ZIEGLER, RALF PETER BRINKMANN, THOMAS MUSSENBROCK, Ruhr-University Bochum, INSTITUTE FOR THEORETICAL ELECTRICAL ENGINEERING TEAM — Micro atmospheric pressure gas discharges offer new applications in biomedical treatment and material processing [1]. A global model is presented, which describes the bulk chemistry with wall looses and an electron temperature as a function of time. The chemical model is self-consistently coupled to an electrical model. The latter considers a capacitively coupled rf-discharge by means of a non-linear lumped circuit model which accounts for non-linear electron resonance heating [2]. In this contribution a geometry, based on the micro atmospheric pressure plasma jet is considered. This device is investigated by V. Schulz-von der Gathen and co-workers at Ruhr-University Bochum. Various parameter studies are performed and results are shown for Helium as a working gas.

[1] F. Iza, et al., Plasma Process. Polym., **5**, 322 (2008)
[2] D. Ziegler, et al., Physics of Plasmas, **16**, 023503 (2009)

Alexander Wollny
Ruhr-University Bochum

Date submitted: 11 Jun 2010 Electronic form version 1.4