Abstract Submitted
for the GEC19 Meeting of
The American Physical Society

Frequency variation in micro atmospheric pressure plasma jets driven by tailored voltage waveforms[1] LENA BISCHOFF, GERRIT HUEBNER, IHOR KOROLOV, Ruhr University Bochum, Germany, ZOLTAN DONKO, Hungarian Academy of Sciences, Budapest, Hungary, YUE LIU, THOMAS MUSSENBROCK, Brandenburg University of Technology, Cottbus, Germany, JULIAN SCHULZE, Ruhr University Bochum, Germany, West Virginia University, USA , PROJECT A4 TEAM — Radio frequency driven micro atmospheric pressure plasma jets (μ-APPJs) are often used as efficient sources of reactive species at low temperatures for, e.g. biomedical applications and surface modifications. In the present work, we perform a systematic investigation of the electron heating dynamics and the generation of selected species in -APPJs driven by Voltage Waveform Tailoring (VWT) as a function of the fundamental frequency, the number of consecutive harmonics, the reactive gas admixtures (He/N_2) and the peak-to-peak voltage amplitude based on experiments and kinetic particle-in-cell/Monte Carlo collision simulations. Our results demonstrate the potential of VWT to optimize and control the generation of selected reactive particle species.

[1]This work is supported by the DFG via SFB 1316 (project A4) and by the Hungarian NKFIH 119357 grant

Lena Bischoff
Ruhr University Bochum

Date submitted: 23 May 2019 Electronic form version 1.4