

Abstract Submitted
for the GEC07 Meeting of
The American Physical Society

Reactivity in microplasma operating at medium pressure X. AUBERT, Ecole Polytechnique, A. PIPA, J. ROPCKE, INP-Greifswald, D.L. MARINOV, Y. IONIKH, State University, St Petersburg, A. ROUSSEAU, LPTP, Ecole Polytechnique, France — IR Tunable Diode Laser Absorption Spectroscopy (TDLAS) and UV broad band absorption spectroscopy measurements are used to detect O₃, NO and NO₂ produced by a microplasma made of a micro-hollow cathode geometry. The gas flows through the microplasma; an additional plasma plume may be ignited on the microplasma anode region using an auxiliary anode. The microplasma may be operated in continuous or self-pulsing mode [1]. The current density in the microplasma is about 3 orders of magnitude higher than in the plume and may reach 1000 A/cm² in a self pulsing mode. It is shown that NO and NO₂ densities scale as a function of the specific energy (J/l). The effect of the plume ignition is to lower the production of these species. Experimental results are compared with an experimental modeling.

[1] A. Rousseau and X. Aubert J. Phys.D : Appl. Phys. **39** (2006) 1619–1622.

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Date submitted: 18 Jun 2007

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