Abstract Submitted
for the GEC08 Meeting of
The American Physical Society

Fluid modeling of a microwave micro-plasma at atmospheric pressure J. GREGORIO, IPFN IST Lisboa / LPGP UPS Orsay, R. ALVAREZ, IPFN IST Lisboa, C. BOISSE-LAPORTE, LPGP UPS Orsay, L.L. ALVES, IPFN IST Lisboa — In this paper we study a microwave (2.45 GHz) reactor that can produce high-density (10^{14}-10^{15} cm^{-3}), low power ($\sim$10 W) plasmas in ambient air or in controlled environments at atmospheric pressure, within the end-gap of a microstrip line, by using a continuous wave excitation. The gap corresponds to a 50-200 μm slit, between two metal blades with 6-14 mm width. Here we present a numerical model describing the micro-plasma sustained with this device, in view of complementing its experimental characterization [1,2]. The simulation tool is a one-dimensional (between metal blades), stationary fluid-type code that solves the charged particle and the electron mean energy transport equations (for argon), together with Poisson's equation for the space-charge electrostatic field and Maxwell's equation for the electromagnetic excitation field. Results yield coupled powers of less than 10 W, for a slit with 100 μm and a maximum electron density of 10^{14} cm^{-3}. [1] J.Gregorio, L.L.Alves, P.Leprince, O.Leroy, L.Teule-Gay and C.Boisse-Laporte, 2007 Bull. Am. Phys. Soc. 52, 22 [2] J.Gregorio, L.L.Alves, P.Leprince, O.Leroy and C.Boisse-Laporte, 2008 19^{th} *ESCAMPIG*, Granada, Spain

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Date submitted: 12 Jun 2008 Electronic form version 1.4