

Abstract Submitted  
for the GEC10 Meeting of  
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**Comparative study of homogeneous dielectric barrier discharge in air and in pure N<sub>2</sub>**<sup>1</sup> DAMIEN BIRAN, NICOLAS NAUDÉ, NICOLAS GHERARDI, LAPLACE - CNRS/UPS/INP — Dielectric Barrier Discharges (DBD) is a very simple and robust way to produce non thermal discharges working at atmospheric pressure. It is now well-known that depending on the gas and the electrical parameters, DBD can operate in a homogeneous mode rather than in the more classical filamentary mode. Thus, it is possible to generate an Atmospheric Pressure Townsend Discharge (APTD) in pure nitrogen. In this work, we report that a slight modification of the electrode configuration allows generating a homogeneous discharge in air, staying at atmospheric pressure. The discharge properties of this new discharge in air are studied through electrical measurements, by short time exposure photographs, and by optical emission spectroscopy. The aim is to help in the understanding of the processes which control the obtaining of this homogeneous mode in air.

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