Abstract Submitted
for the GEC10 Meeting of
The American Physical Society

Characterization of the Different Regimes of Nanosecond Repetitively Pulsed (NRP) Discharges in Air at Atmospheric Pressure and Ambient Temperature[1] DIANE RUSTERHOLTZ, Laboratoire EM2C CNRS UPR 288 Ecole Centrale Paris, JULIEN JARRIGE, DAVID PAI, DEANNA LACOSTE, CHRISTOPHE LAUX — Nanosecond Repetitively Pulsed discharges of the corona, glow and spark types have been obtained in atmospheric pressure air at ambient temperature. Pai *et al* had predicted that the glow NRP discharges could be obtained at 300 K if the radius of the electrodes were reduced or the duration of the pulsed were increased. We built a reactor in a pin-pin configuration and used a 2-50 ns pulse duration generator and obtained glow discharges at 300 K. Experiments have been performed to determine the parameter space (interelectrode gap distance, pulse repetition frequency, applied voltage, pulse duration, radius of curvature of the electrodes) of the glow regime at 300 K. Investigations of the electrical characteristics and radiative properties of the different discharge regimes are carried out using voltage - current measurements, fast ICCD imaging and time resolved Optical Emission Spectroscopy.

[1]Work supported by the PREPA program (grant ANR-09-BLAN-0043-03).

Diane Rusterholtz
Laboratoire EM2C CNRS UPR 288 Ecole Centrale Paris

Date submitted: 11 Jun 2010 Electronic form version 1.4