Abstract Submitted
for the GEC05 Meeting of
The American Physical Society

Time-Resolved Studies of Fast-Pulsed Dielectric Barrier Discharges[1] JOSE LOPEZ, Stevens Institute of Technology, Hoboken, NJ, USA, ROBERT J. LEIWEKE, US Air Force Research Laboratory, Propulsion Directorate, WPAFB, OH, USA, PETER BLETZINGER, JAMES M. WILLIAMSON, Innovative Scientific Solutions, Inc., Dayton, OH, USA, ABRAHAM BELKIND, Stevens Institute of Technology, Hoboken, NJ, USA, KURT H. BECKER, Center for Environmental Systems, SIT, Hoboken, NJ, USA, BISWA N. GANGULY, US Air Force Research Laboratory, Propulsion Directorate, WPAFB, OH, USA — Dielectric Barrier Discharges (DBDs) produce highly non- equilibrium plasmas that allow for the effective generation of ions, excited species, and radicals from energetic electron-driven processes. In an effort to improve the production of the excited species, radicals, and UV radiation, which is strongly influenced by the reduced electric field, it is more effective to use a pulsed high voltage of very short duration, particularly if the aim is to keep the gas temperature low. In order to better understand this physical phenomenon, time-resolved electrical measurements in conjunction with the established methods of time-resolved optical emission spectroscopy (TR-OES) and time-resolved diode laser absorption spectroscopy (TR-DLAS) were utilized to characterize the fast-pulsed discharge. As an additional investigative method, an ICCD camera was used for time-resolved imaging studies.

[1]Work supported by AFOSR

Jose Lopez
Stevens Institute of Technology, Department of Physics and
Engineering Physics, Hoboken, NJ, USA

Date submitted: 13 Jun 2005 Electronic form version 1.4