

Abstract Submitted  
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**Fast optical and electrical diagnostics of pulsed spark discharges in different gap geometries**<sup>1</sup> HANS HÖFT, INP Greifswald, Felix-Hausdorff-Str. 2, 17489 Greifswald, Germany , TOM HUISKAMP, Eindhoven University of Technology, Dept. of Electr. Engineering, P.O. Box 513, 5600 MB Eindhoven, The Netherlands, MANFRED KETTLITZ, INP Greifswald — Spark discharges in different electrode configurations and with various electrode materials were ignited in air at atmospheric pressure using a custom build pulse charger with  $\approx 1 \mu\text{s}$  voltage rise time (up to 28 kV) in single shot operation. Fast voltage and current measurements were combined with iCCD imaging with high spatial resolution (better than  $10 \mu\text{m}$ ) on pin-to-pin, pin-to-half-sphere and symmetrical half-sphere tungsten electrodes and symmetrical half-sphere brass electrodes for electrode gaps of 0.1 to 0.7 mm. Breakdown voltages, consumed electrical energies and the discharge emission structures as well as the discharge diameters were obtained. Because of the synchronization of the electrical measurements and the iCCD imaging (i.e. one complete data set for every shot), it was possible to estimate the current density and the change of the discharge pattern, such as single or multiple channels, for all cases.

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