

Abstract Submitted
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Scaling of power consumption in one-hole surface dielectric barrier discharge (DBD)¹ THEOPHILE BONNET, DAOMAN HAN, YEVGENY RAITSES, SHURIK YATOM, Princeton Plasma Physics Laboratory — Larger area surface DBDs with multiple holes have been extensively studied in the past ². In this work, we study one-hole surface DBDs with the aim to understand the power scaling with the hole diameter. The DBD device is made of two machined copper electrodes separated with a dielectric film made from a polyamide material. One of the electrodes has a hole. In the described experiments, electrical characterization with Lissajous figures correlated with imaging have been made with respect to the hole size. That allows to determine the power consumption, mode of the DBD operation including, diffusive or filamented, and the transition between these two modes as the function of the power for different hole sizes.

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²Jochen Kriegseis, Benjamin Mller, Sven Grundmann, Cameron Tropea, ”**Capacitance and power consumption quantification of dielectric barrier discharge (DBD) plasma actuators**”, *Journal of Electrostatics* **69** (2011) 302-312.

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