

Abstract Submitted
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V-I Characteristics and Power Measurements in Asymmetric Dielectric Barrier Discharges¹ DMITRY OPAITS, MIKHAIL SHNEIDER, RICHARD MILES, Princeton University, SERGEY MACHERET, Lockheed Martin — Dielectric barrier discharge (DBD) plasma actuators for flow control have been under extensive studies for the last decade. It is usually driven by a sinusoidal voltage profile at up to 20 kHz frequency, although some other voltage profiles, such as square, triangular, and positive and negative sawtooth, were also used and in some cases demonstrated an improvement in performance. A voltage profile consisting of nanosecond pulses added to bias voltage was also found to be effective in generating wall jets. It was also shown that if the dielectric is coated with a semiconductive material the actuator can be driven by dc voltage only. This work will present V-I characteristics and power consumption of the plasma actuators driven by various voltage profile, including sinusoidal in wide range of frequencies, nanosecond pulses and dc, and compare their efficiency.

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