

Abstract Submitted
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Thrust Enhancing Designs for single DBD Plasma Actuators

SONG GUO, UWE KORTSHAGEN, University of Minnesota — Dielectric Barrier Discharge (DBD) plasma actuator can be used for the separation control of the air foil applications, whose performance is directly related to the thrust which is generated during the discharge. To obtain more efficient performance, designs which can produce more thrust than the conventional single DBD plasma actuator were made by exploring the asymmetry of the discharge and introducing a semi-conductive layer on the top of the dielectric surface. Direct thrust measurement proved that the new designs can increase the thrust by 70% compared to the traditional plasma actuator, when operated on the same input voltage and discharge frequency. Measurement also showed evidence that by increasing the conductivity of the semi-conductive layer, the thrust will increase.

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