Abstract Submitted
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Pulsed-DC DBD Plasma Actuators[1] ALAN DUONG, THOMAS CORKE, FLINT THOMAS, University of Notre Dame — A power system for dielectric barrier discharge (DBD) plasma actuators that utilizes a pulsed-DC waveform is presented. The plasma actuator arrangement is identical to most typical AC-DBD designs with staggered electrodes that are separated by a dielectric insulator. A key difference is that the pulsed-DC actuator utilizes a DC voltage source to drive the actuator instead of an AC voltage input. The DC source is supplied to both electrodes. The exposed electrode remains constant in time while the encapsulated electrode is periodically grounded for short instances then is allowed to rise to the source DC level. Further investigation of the pulsed-DC plasma actuator was conducted. Time-resolved velocity measurements were done to characterize the induced velocity field generated by the pulsed-DC plasma actuator. A model of the pulsed-DC plasma actuator is developed in LTspice for further study. The work presented are intended in developing a model to be used in CFD flow control simulations.

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