

Abstract Submitted
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Turbulent Boundary Layer Control using Plasma Actuators

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This experimental study is focused on turbulent boundary layer flow control using single dielectric barrier discharge plasma actuators. PIV measurements are used to document the effect of plasma actuation on the turbulent boundary layer flow. Flow control experiments were conducted for both a flat plate zero pressure gradient turbulent boundary layer flow and an adverse pressure gradient boundary layer over a convex ramp section. The effect of plasma actuation is characterized by the momentum addition to the near wall region shown in the boundary layer profiles extracted at various locations downstream of actuation. Measurements are presented which allow one to discern the physical mechanisms associated with both steady and unsteady plasma actuation.

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