

Abstract Submitted  
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**Cylinder Flow Control Using Plasma Actuators**<sup>1</sup> ALEXEY KOZLOV, FLINT THOMAS, University of Notre Dame — In this study the results of flow control experiments utilizing single dielectric barrier discharge plasma actuators to control flow separation and unsteady vortex shedding from a circular cylinder in cross-flow are reported. Two optimized quartz dielectric plasma actuators mounted on the cylinder surface utilizing an improved saw-tooth waveform high-voltage generator allowed flow control at Reynolds number approaching supercritical. Using either steady or unsteady actuation, it is demonstrated that the plasma-induced surface blowing gives rise to a local Coanda effect that promotes the maintenance of flow attachment. PIV based flow fields and wake velocity profiles obtained with hot-wire anemometry show large reductions in vortex shedding, wake width and turbulence intensity.

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