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Fluidic Control of Aerodynamic Forces on an Axisymmetric Body[1] PHILIP ABRAMSON, BOJAN VUKASINOVIC, ARI GLEZER, Georgia Institute of Technology — The aerodynamic forces and moments on a wind tunnel model of an axisymmetric bluff body are modified by induced local vectoring of the separated base flow. Control is effected by an array of four integrated aft-facing synthetic jets that emanate from narrow, azimuthally-segmented slots, equally distributed around the perimeter of the circular tail end within a small backward facing step that extends into a Coanda surface. The model is suspended in the wind tunnel by eight thin wires for minimal support interference with the wake. Fluidic actuation results in a localized, segmented vectoring of the separated base flow along the rear Coanda surface and induces asymmetric aerodynamic forces and moments to effect maneuvering during flight. The aerodynamic effects associated with quasi-steady and transitory differential, asymmetric activation of the Coanda effect are characterized using direct force and PIV measurements.

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