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Active Flow Control on a Low Reynolds Number Wing MATTHEW MUNSON, MORTEZA GHARIB, California Institute of Technology — Control of vortex formation has been shown to be a critical mechanism in some forms of animal flight. Flapping motions create advantageous flow structures which play a role in enhancing lift and increasing maneuverability. Active flow control may be capable of providing similar influence over vortex formation processes in fixed wing flight at small Reynolds numbers. Steady and pulsed mass injection strategies through simple slot actuators are used to explore the open-loop response of the flow around a simple low-aspect ratio wing. Flow dynamics and vortex formation will be quantitatively visualized with DPIV and flow forces will be simultaneously measured with a six-component balance.

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