Abstract Submitted
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Closed-loop control of a turbulent mixing layer - experimental study[1] VLADIMIR PAREZANOVIC, JOEL DELVILLE, CARINE FOURMENT, LAURENT CORDIER, BERND NOACK, Institute PPRIME, France, TAMIR SHAQARIN, Tafila Technical University, Jordan — Open and closed-loop control of a turbulent mixing layer is experimentally performed in a dedicated wind-tunnel facility (TUCOROM). The flow is manipulated with 100 independently operating fluidic micro-valve actuators integrated transversely in the trailing edge of the splitter plate. Sensing is performed with a rake of 30 hot-wire probes located downstream in the mixing layer. The control goal is a manipulation of the spreading rate. The underlying physical mechanisms employ a wide range of frequencies as well as a wide range of spanwise modes. The calculated Reynolds number based on vorticity thickness is about $Re = 2000$. Control authority is presented with PIV and hot-wire results.

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