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Breakup Properties and Trajectories of Turbulent Round Liquid Jets in Gaseous Crossflows KYUNGJIN LEE, University of Michigan, FRANCISCO J. DIEZ, Rutgers Univesity, CHRISTIAN AALBURG, G. E. Global Research, KHALED A. SALLAM, Oklahoma State University — An experimental investigation of breakup properties and trajectories of turbulent round liquid jets in uniform gaseous crossflows is described. Pulsed shadowgraphy and holography were used to measure conditions required for liquid column breakup as a whole, rates of turbulent primary breakup and liquid column trajectories. Liquid column breakup lengths are shorter than those of nonturbulent liquid jets indicating enhancing effects of liquid turbulence on liquid column breakup. Rates of breakup and trajectories are in good agreement with earlier measurements for nonturbulent liquid jets. Phenomenological analyses were effective to help interpret and correlate the measurements.

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