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Drop Size Distributions of Aerated Liquid Jets injected in Subsonic Crossflow ADEGBOYEGA ADEBAYO, KHALED SALLAM, Oklahoma State University, KUO-CHENG LIN, Taitech, CAMPBELL CARTER, AFRL — An Experimental investigation of the breakup of aerated liquid jets in subsonic crossflow is described. Test conditions include crossflow Mach numbers of 0.3 and 0.6, Gas-to-liquid ratio of 0%, 4%, and 8%. Double pulsed digital holography was used to investigate the spray characteristics at downstream distances of 25, 50, and 100 jet diameters. The holograms are analyzed using image-processing algorithms to yield information about the drop sizes, drop velocities, and mass fluxes. Different drop size distributions are tested and compared including Rosin-Rammler distribution, log-normal distribution, and Simmons' universal root-normal distribution.

Khaled Sallam
Oklahoma State University

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