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**PIV Seeding Techniques in Large Scale Open Loop Wind Tunnel Facilities** RYAN SCHMIT, Air Force Research Laboratory, JIM CRAFTON, JORDI ESTEVADEORDAL, Innovative Scientific Solution Inc. — Seeding techniques to validate the use of Particle Image Velocimetry (PIV) in large scale wind tunnel facilities was performed at the Subsonic Aerodynamic Research Laboratory (SARL) facility at Wright-Patterson Air Force Base. The SARL facility is an open loop tunnel with a 7 by 10 foot octagonal test section that has 56% optical access and the Mach number varies from 0.2 to 0.5. Two seeding techniques were tested at Mach 0.2 and 0.3: a Rosco fogger line seeder system originally designed for flow visualization in the tunnel and a fluidized bed of aluminum oxide dispensing from a multi-port rod. Two and 3 component PIV images were taken in the stream-wise plane over a semi hemispherical geometry that includes a shear layer and a 3D backward facing step. The results show the Rosco line seeder does produce excellent flow visualization images whereas the aluminum oxide seeder produces better seed dispersion resulting in excellent PIV images.

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