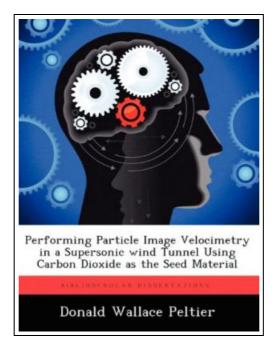
# Performing Particle Image Velocimetry in a Supersonic Wind Tunnel Using Carbon Dioxide as the Seed Material (Paperback)



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# Reviews

This publication is fantastic. We have read through and i am certain that i will planning to read yet again yet again down the road. You wont feel monotony at at any time of your respective time (that's what catalogs are for concerning when you request me). (Alec Langosh)

# PERFORMING PARTICLE IMAGE VELOCIMETRY IN A SUPERSONIC WIND TUNNEL USING CARBON DIOXIDE AS THE SEED MATERIAL (PAPERBACK)



Biblioscholar, United States, 2012. Paperback. Condition: New. Language: English . Brand New Book \*\*\*\*\* Print on Demand \*\*\*\*\*. Particle image velocimetry (PIV) was performed utilizing clean seed particles generated by injecting liquid carbon dioxide (CO2) directly into an open-circuit blowdown Mach 2.9 supersonic wind tunnel. Rapid atomization and cooling of the liquid CO2 created a preponderance of nearly uniform and well dispersed microscopic dry ice particles which were illuminated using a frequency double Nd: YAG laser. Ample light was scattered from the flow tracers, which provided a strong signal to noise ratio. The particles completely sublimed into an innocuous gas downstream of the test section causing no side effects or problems with wind tunnel operation. A variety of geometries were inspected using PIV. In addition to empty test section characterization, flow aft of a cone and transverse injection through a long shallow cavity was visualized and adaptive cross-correlation vector maps were computed. These vector maps revealed many relevant flow structures pertinent to each test setup. Measured velocities followed the trends expected for each test setup but the vector magnitudes were shifted 3-9 below those predicted by theory. Procedures and information pertinent to liquid CO2 injection are provided to help researchers implement this process in similarly scaled supersonic wind tunnels.

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