



Doppler Global Velocimetry Measurements for Supersonic Flow Fields

By James F. Meyers

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 22 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. The application of Doppler Global Velocimetry (DGV) to high-speed flows has its origins in the original development of the technology by Komine et al (1991). Komine used a small shop-air driven nozzle to generate a 200 ms flow. This flow velocity was chosen since it produced a fairly large Doppler shift in the scattered light, resulting in a significant transmission loss as the light passed through the iodine vapor. This proof-of-concept investigation showed that the technology was capable of measuring flow velocity within a measurement plane defined by a single-frequency laser light sheet. The effort also proved that velocity measurements could be made without resolving individual seed particles as required by other techniques such as Fringe-Type Laser Velocimetry and Particle Image Velocimetry. The promise of making planar velocity measurements with the possibility of using 0.1-micron condensation particles for seeding, Dibble et al (1989), resulted in the investigation of supersonic jet flow fields, Elliott et al (1993) and Smith and Northam (1995) - Mach 2.0 and 1.9 respectively. Meyers (1993) conducted a wind tunnel investigation above an inclined...



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