

Laser Anemometry In Fluid Mechanics

Selected Papers from the First Intl. Symp. On Appl. Of Laser-doppler Anemometry to Fluid Mechanics

Editors:

R.J. Adrian, D.F.G. Durão, F. Durst, H. Mishina and J.H. Whitelaw

Contents

Introduction. *By R.J. Adrian*

Chapter I Single-Phase Flows

- Two dimensional laser-Doppler measurements of fluctuations of velocity in an excited jet. *By P. Meyer and P.G. Sava.*
- Laser-Doppler measurements of Gortler vortices in laminar and low-Reynolds-number turbulent boundary layers. *By R.I. Crane and J. Sabzvari.*
- Velocity-correlation measurements of oscillating flow and turbulence in rotational Couette flow. *By G. Pfister, K. Schatzel and U. Gerdt.*
- Concentration/velocity measurements in the mixing layer of two plane streams. *By C. Borrego.*
- Developing flow in S-shaped ducts. *By B.H. Anderson, A.M.K. Taylor, J.H. Whitelaw and M. Yanneskis.*
- Laser Doppler anemometer measurements of local fluids recirculation in model rod bundle assemblies. *By J.M. Bates and J.M. Creer.*

Chapter II Two-Phase Flows

- Dynamic distribution between the velocities of the two phases of a gas-solid suspension flow measured using LDA. *By Y.D. Tridimas, C.A. Hobson, N.H. Wooley and M.J. Lalor.*
- Correlation measurements in a two-phase flow. *By H.J. Pfeifer*
- Measurements of size and velocity of particle in two-phase flow by a three beam LDA system. *By K. Hishida, M. Maeda, J. Imaru, K. Hironaga and H. Kano*
- The simulations measurement of particle size, velocity and mass transfer in a pulsed two phase flow field. *By M.L. Yeoman, N.S. Lightfoot and A.P. Morse.*
- The measurement of mass transfer coefficients of bubbles rising in liquids using laser-Doppler anemometry. *By a. Brankovic, T. Boerner and W.W. Martin.*

Chapter III Non-Isothermal Flows and Rotating Machinery

- Turbulence measurements in a ported IC engine. *By C. Arcoumanis, A.F. Bicen and J.H. Whitelaw.*
- Turbulence measurements in a ported IC engine. *By T.M. Liou, D.A. Santavicca and F.V. Bracco*
- Propeller wake survey by laser-Doppler velocimeter. *By S. Kobayashi.*
- Measurements of the radial and axial velocity in a bouyant jet using laser-Doppler anemometry. *By W.D. Baines, D.C. Ferguson and F. Schmidt.*
- Study of coherent structures in a high-speed exhaust jet. *By H.J. Schafer.*
- The turbulent boundary layer over a flat plane with strong stepwise heating. *By T.T. Ng., L. Talbot, R.K. cheng and F. Robben.*

Chapter IV Separated Flows

- Characteristics of swirling flow exhausting from nozzles with curved walls. *By N. Syred, B.S. Sidnu and A.C. Styles.*
- LDA measurements within a vortex-breakdown bubble. *By J. Bornstein and M.P. Escudier.*
- Experimental study of the mean and fluctuating flow properties in a small furnace model. *By T.W. Abou-Arab, W. Richtner and M. Segeer.*
- An investigation of a separated equilibrium turbulent boundary layer. *By R.C. Hastings and K.G. Moreton.*
- Laser-Doppler and numerical studies of backward-facing step flows. *By F. Durst and J.C.F. Pereira.*
- Laser velocimeter measurements in separated flow with combustion. *By W.H. Stevenson, H.D. Thompson, R.D. Gould and R.R. Craig.*

Chapter V Optical Systems and Signal Processing

- Long range wind velocity measurements using visible laser radiation. *By F. Durst and G. Richter.*
- Fiber-optic laser anemometer measurements. *By P. Buchhave and J. Knuthsen.*
- Optical-fiber-type laser Doppler velocimeter for pulsatile blood flows. *By H. Nishihara, J. Koyama, N. Hoki, F. Kajiya, T. Muramoto and K. Hironaga.*
- Measurements of blood flow velocity by means of a laser Doppler microscope. *By T. Koyama, M. Horimoto, T. Asakura and H. Mishina.*
- Laser Doppler velocimetry with a Michelson spectrometer. *By G. Smeets.*
- Effect of cylindrical-wall scattering in off-axis differential-type laser-Doppler velocimetry. *By H. Mishina, K. Takahashi and T. Asakura.*
- Some consequences of bias effects. *By D.F.G. Durão, G. Pita, A. Velho, M.A. Founti, J. Laker and J.H. Whitelaw.*
- Statistical bias of the velocity distribution function in laser anemometry. *By J.C. Erdmann and C.D. Tropea.*