SEVENTH INTERNATIONAL SYMPOSIUM ON APPLICATIONS OF LASER TECHNIQUES TO FLUID MECHANICS

VOLUME II

July 11th to 14th 1994
Lisbon, Portugal
Session 21.  TWO PHASE FLOW INSTRUMENTATION II
21.3* A New Technique to Measure Refractive Index With Phase Doppler Anemometry, H. von Benzon, T. Nonn and P. Buchave
21.4* Phase Doppler Anemometry With Dual Bursts Technique for Particle Refractive Index Measurements, F. Onofri, G. Grehan, G. Gouesbet, T. Xu, G. Brenn and C. Tropea
21.5* Simultaneous Determination of Temperature and Size of Droplets from the Rainbow, J. van Beeck and M. Riethmuller

Session 22.  PARTICLE TRACKING VELOCIMETRY, PTV
22.1* Lagrangian Study of Convective Boundary Layer Using Image Analysis, A. Cenedese and G. Querzoli
22.2* Flow Measurements Close to the Free Air/Water Interface, J. Dieter, R. Bremeyer, F. Hering and B. Jähne
22.3* PTV Measurement on a Rotating System Using Semiconductor Laser and CCD Camera, H. Koyama, K. Fujimura, T. Uemura, H. Sung and J. Hyun
22.4* Quantitative Visualization of Velocity Distributions in Flow, I. Shimizu, K. Suzuki and N. Akino
22.5* Flow Tagging in Water Using Photo-Activated Non intrusive Tracking of Molecular Motion (PHANTOMM), W. Lempert, S. Harris, K. Magee, C. Burchan, D. Saville, R. Miles, K. Gee and R. Haugland
22.6* Measurement of 3-D Velocity Fields in a Square Duct Using A Stereo Color-Coded Particle Tracking Velocimetry, Tzong-Shyan Wung

Session 23.  DATA PROCESSING III
23.1* Application of Kalmen Reconstruction to Laser-Doppler Anemometry Data for Estimation of Turbulent Velocity Fluctuations, H. van Maanen and H. Tulleken
23.2* LDA Signal Reconstruction: Application to Moment and Spectral Estimation, E. Müller, H. Nobach and C. Tropea
23.3* Heterodyning and Quadrature Signal Generation: Advantageous Techniques for Applying New Frequency Shift Mechanisms in the Laser Doppler Velocimetry,

23.4* ASIC Based Processing Unit in the Miniature LDA Sensor Concept, Using Minimal Cross-Correlation, S.M. Damp

23.5* A Comparison Between Two Different Laser Doppler Anemometer Processors in the Low Turbulence Regime, C. Caspersen

Session 24. TWO-PHASE FLOW INSTRUMENTATION III

24.1* A Rigorous Procedure for Design and Response Determination of Phase Doppler Systems, A. Naqwi and R. Menon

24.2* Experimental and Theoretical Studies of the Sources of Uncertainties in a Phase Doppler System, M. Seidel, M. Ziema, A. Naqwi and F. Durst

24.3* Improving the Accuracy of Particle Sizing Techniques Using the Light Scattered from Single Particles, M. Bohan and T. Claypole

24.4* Coherent Scattering in Phase Doppler Interferometry: Effects on Spray Characterization, S. Sanker, K. Ibrahim and W. Bachalo

24.5* Integral Doppler Spectra Due to the Particles Size-Velocity Correlation in Two-Phase Flows, V. Kononenko and B. Rinkevichius

24.6* A Miniaturized Instrument to Measure Particles From 2um to 5000 um, C. Wood and C. Hess

24.7* Measurements of Size and Velocity of Arbitrary Shaped Particles by a LDA Based Shadow Image Technique, H. Morikita, K. Hishida and M. Maeda

Session 25. FREE FLOWS

25.1* Three-Component LDA Measurements of Mean Turbulence Quantities, Time and Spatial Correlation Functions in the Wake of a Flat Plate in an Adverse Pressure Gradients, M. Tummers, P. Narayana and D. Passchier

25.2* An LDA Based Method for Accurate Measurement of the Dissipation Rate Tensor With Application to a Circular Jet, G. Johansson and J. Klingmann

25.3* Velocity Characteristics of Flow With and Without Swirl Around a Disk with a Central Jet, D. Durão, C. Freek and J. Pereira

25.4* Laser Sheet Tomography of Jet Flows, P. Larsen, L. Böhme and E. Andresen

25.5* Two-Dimensional Gas Concentration Measurement in a Large Low Speed Wind Tunnel Using Light Scattering By Small Particles, Bernd Leitl

25.6* Concerning Taylor Time and Length Scale Estimates Made from Single and Two-Point Correlation LV Measurements, L. Benedict, P. R. Yearling and R. Gould
Session 26. PARTICLE IMAGE VELOCIMETRY, PIV

26.1* High Speed Scanning 3-D Particle Image Velocimetry Technique, Y. Guezenec, Y. Zhao and T. Gieseke

26.2* Multiple Light Sheet Particle Holography For 3-D Flow Velocimetry, H. Hinrichs and K. Hinsch

26.3* An In-Line, Stereoscopic, Colour PIV System for 3-Component Velocity Measurements with Ambiguity Resolution, I. Grant, S. Fu, X. Pan, X. Wang and A. Aroussi

26.4* The Accuracy and Reliability of PIV Measurements, A. Host-Madsen and D. McCluskey


26.6* Precision Whole-Field Velocity Measurements With Frequency-Scanned Filtered Rayleigh Scattering, R. Miles, J. Forkey, N. Finkelstein, W. Lempert

Session 27. TWO-PHASE FLOW I

27.1* Laser Shadowgraphy of the Breakup of a Liquid Sheet Downstream of a Model Prefilming Airblast Atomiser, M. Adzic, I. S. Carvalho and M.V. Heitor


27.3* Annular Two-Phase Flow Sauter Mean Diameter Measurements--Comparison With Predictions, C.J. Bates and R. Ayob

27.4* Velocity and Particle Size Measurements in a Two-Phase Flashing Jet, R. Balachandar, S. Mulpuru and H. Ungurian

Session 28. BEND FLOWS

28.1* The Experimental Study on the Characteristics of Turbulent Polymer Solution Flow in a 180 Degree Square Sectioned Bend, F. Tong, S. Houjung


28.3* Velocity Measurements in a Rotating 'U' Bend Using a Stationary Fibre Optic LDA Probe, S. Cheah, H. Iacovides, D. Jackson, H. Ji and B. Launder

28.4* Visualization and Measurement of Velocity Profile in Pulsatile Flow Through U-Bend Using Laser-Induced Fluorescence Method, K. Ohba, H. Kamino and T. Takegami

28.5* 3-Dimensional Laser Doppler Measurements in a Curved Flume, R. Booij and J. Tukker
Session 29. SCALAR MEASUREMENT II
29.1* A Real-Time Free-Surface Elevation Mapping Technique, D. Dabiri, X. Zhang and M. Garib
29.2* An Optical Method For Determining The Geometric Characteristics of Liquid Films Flowing Around A Horizontal Tube, P. Speck, M. Khan, P. Desevaux and P. Panday
29.3* Application of Laser Induced Fluorescence For Measuring the Thickness of Liquid Films on Transparent Walls, J. le Coz, C. Catalano, T. Baritaud
29.4* A LIF Technique for the Measurement of Concentration Profiles in the Aqueous Mass Boundary Layer, T. Münsterer and B. Jähne

Session 30. OPEN FORUM

Session 31. TWO-PHASE FLOW II
31.2* Experimental Study on Controlling Size-Distribution of Droplets by Multi-Spray, M. Higuchi, T. Shirakawa, H. Morikita, K. Hishida and M. Maeda
31.3* LDA Measurements of Turbulent Air-Solid Suspension Flow in a 90° Bend of Square, B. Hiwatika, Y.D. Tridimas and N.H. Woolley
31.4* Pneumatic Particle Conveyance in Pipe Bend: Simultaneous Two Phase PIV Measurements of the Slip Velocity Between the Air and Particle, M.L. Jakobsen, D.R. McCluskey, W.J. Easson, D.H. Glass and C. A. Greated
31.5* Measurement of Pseudo-Turbulence in Bubbly Flows By Phase Doppler Anemometry, A. Cartellier andImg. Legi

Session 32. HOLOGRAPHIC INTERFEROMETRY & TOMOGRAPHY
32.1* High Resolution, Time-Resolved Optical Absorption Tomography, A.J. Daiber, L. Hesselink
32.2* Mass Transfer Measurement by Holographic Interferometry for a Jet Impinging on a Flat Surface at Moderate Reynolds Numbers, N. Macleod and J.J. Nebrensky
32.3* Tomographic High-Speed Digital Holographic Interferometry Measurements in Free-Jet Flows, B.H. Timmerman and D.W. Watt
32.4* Three Components Velocity Measurements in a Connective Fluid by Holographic Interferometry, N. Andrès, M.P. Arroyo and M. Quintanilla
32.5* Measurements of Flow Velocity and Temperature Using Laser Photo-Thermal Effect With a Differential Interferometer, N. Nakatani and T. Oshio
Session 33.  ENGINES I

33.1* Simultaneous Two Component Velocity and Dropsize Measurements in a Combusting Diesel Fuel Spray, G. Picher and G. Wigley

33.2* Correlation Between the Characteristics of an IDI Diesel Spray Measured with PDA and Instantaneous Conditions in the Nozzle, J.M. Desantes, J. Arrège and J.V. Pastor

33.3* Manifold Injection and the Origin of Droplets at the Exit of an Inlet Valve, M. Posylkin, A.M.K. Taylor and J.H. Whitelaw

33.4* Experiments With Valve Shrouds and Secondary Fuel Injection for Lean Burn, C. Arcoumanis, D. Hull, J.H. Whitelaw and C.H. Xu

33.5* Comparison of In-Cylinder Scavenging Flows in a Two-Stroke Cycle Engine Under Motored and Fired Conditions, P.C. Miles, R.M. Green and P.O. Witze

Session 34.  TWO PHASE FLOWS III


34.2* The Application of a Holographically Shaped Laser Beam for Light Scattering Studies During Particle Breakup, J.J.F. Strecker and P. Roth

34.3* Microprojectile Velocities in a Gas Driven Launcher, A.L. Duval, N.W. Page and K. Bremhorst

34.4* Laser Holographic Studies on Deformation and Fragmentation of Droplets in their own Vapor, G. Zerf and K. Hornung

34.5* Single Particle Operations by LDA-Assisted Electrodynamic Thermogravimetry, M. d'Amore, G. Donsi, P. Giordano and G. Raso

34.6* Phase-Doppler Anemometrie (PDA) - A New Tool for Monitoring Thermal Spraying, R. Zeller, J. Domnick, E. Schubert, H.W. Bergmann and F. Durst

Session 35.  PIV & PTV SIGNAL PROCESSING


35.2* A Compact and Simple all Optical Evaluation Method for PIV Recordings, A. Vogt, J. Kompenhans and F. Reichel

35.3* A New Paradigm for Particle Tracking Velocimetry, Based on Graph-Theory and Pulsed Neural Network, D. Derou and L. Herault

35.4* The Application of the Neural Network Technique to the Analysis of Particle Tracking (PIV) Images Obtained in Flows with a Directional Ambiguity, I. Grant, X. Pan and A. Aroussi
35.5* Error Analysis for PIV Recording Utilizing Image Shifting, I.M. Raffel and J. Kompenhans
35.6* The Importance of Image Shifting to the Applicability of the PIV Technique for Aerodynamic Investigations, J. Kompenhans and M. Raffel
35.7* High Accuracy Techniques Applied to the Extraction of Absolute Position Estimation in 3D PIV, M. Funes-Gallanzi and P.J. Bryanston-Cross

Session 36. ENGINES II
36.1* Simultaneous Measurement of Inlet Flow and Valve Motion in Internal Combustion Engines by Laser Doppler Techniques, N. Paone, C. Santollini and E.P. Tomasini
36.3* Phase-Doppler Characterization of a Diesel Spray Injected into a High Density Gas under Vaporization Regimes, A. Coghe and G.E. Cossali
36.5* PDA Analysis of Transient Spray Flows Initiated From Air Assisted Injector, T. Obokota, H. Tanaka and T. Koyama

Session 37. PIV APPLICATIONS
37.1* PIV Measurements in Simulated Microbursts, E.K. Longmire and A. Alahyari
37.2* A Study of an Inclined Cylinder Wake Using Digital Particle Image Velocimetry, L.J.W. Graham and J. Soria
37.3* Investigation of the Local Flow Topology in the Vicinity of a Prosthetic Heart Valve by Using Particle Image Velocimetry, F. Hirt, Z. Zhang and E. Jud
37.4* Comparison of PIV Data With Hot-Wire Measurements and Calculations Obtained for Instabilities in a Flat Boundary Layer, M. Fischer

Session 38. AERODYNAMICS
38.1* Experimental Study of the Dynamic Stall Process on a Pitching Airfoil by Means of Laser Sheet Visualization and PIV Measurements, P. Wernert, G. Koerber, F. Wietrich, M. Raffel and J. Kompenhans
38.2* Embedded LDA Technique Applied to the Boundary-Layer Separation Measurement on Oscillating Airfoils, D. Favier, M. Pascazio and C. Maresca
38.3• A Phase Locked High Speed Real-Time Interferometry System for Large Amplitude Unsteady Flows, M.S. Chandrasekhara, D.D. Squires, M.C. Wilder and L.W. Carr

38.4• Investigation of the Unsteady Diffuser Flow in a Radial Pump, K. Eisele, Z. Zhang, F. Muggli

38.5• The Application of 3D Laser-Doppler Anemometry to Large Scale Flow Measurements on a Formula 1 Racing Car, C. Saunders, J. Rickards, C. Swales, R.V. Barrett

Session 39. COMPLEX FLOWS


39.2• Investigation of Particle Flows in a Top-feed Shell Boiler Using Laser Sheet Illumination, J. Stroud

39.3• Velocity Characteristics of the Crossflow over Tube Bundles, S. Balabani, G. Bergeles, D. Burry and M. Yianneskis

39.4• LDA Study of Turbulent Flow in a Staggered Tube Bundle, K. E. Meyer and P. Larsen

39.5• Automatic Computer-Based Non-Intrusive Temperature Measurements in a Counterflow Heat Exchanger, M.J. Braun, M. Dzodzo, S.B. Lattime and R. Krstic

AUTHORS' INDEX