

Laser Techniques for Fluid Mechanics

Selected Papers from the 10th International Symposium Lisbon, Portugal July 10–13, 2000

Bearbeitet von

R.J. Adrian, D.F.G. Durao, M.V. Heitor, M. Maeda, Cameron Tropea, J.H. Whitelaw

1. Auflage 2002. Buch. x, 566 S. Hardcover

ISBN 978 3 540 42837 4

Format (B x L): 15,5 x 23,5 cm

Gewicht: 2170 g

[Weitere Fachgebiete > Technik > Technik Allgemein > Technische Optik, Lasertechnologie](#)

schnell und portofrei erhältlich bei



Die Online-Fachbuchhandlung beck-shop.de ist spezialisiert auf Fachbücher, insbesondere Recht, Steuern und Wirtschaft. Im Sortiment finden Sie alle Medien (Bücher, Zeitschriften, CDs, eBooks, etc.) aller Verlage. Ergänzt wird das Programm durch Services wie Neuerscheinungsdienst oder Zusammenstellungen von Büchern zu Sonderpreisen. Der Shop führt mehr als 8 Millionen Produkte.

Table of Contents

CHAPTER I. VELOCITY

I.1. Light-in-Flight holography with switched reference beams for cross-correlation in deep volume PIV	3
<i>S. F. Herrmann, M. Geiger, K. D. Hinsch and J. Peinke</i>	
I.2. 3D-PTV experiments of anomalous, steady transport of a conservative tracer in porous media	25
<i>A. Cenedese, J. H. Cushman and M. Moroni</i>	
I.3. Investigation of the spatio-temporal flow structure in the log-law region of a turbulent boundary layer by means of multi-plane stereo particle image velocimetry	39
<i>C. J. Kähler, M. Stanislas, T. Dewhurst and J. Carlier</i>	
I.4. 3-Component Doppler laser-two-focus velocimetry applied to a transonic centrifugal compressor	55
<i>W. Förster, G. Karpinsky, H. Krain, J. Röhle and R. Schodl</i>	
I.5. Two-point chirp laser Doppler velocimeter using a powerful fibre-coupled green Nd:YAG ring laser	75
<i>J. Czarske</i>	
I.6. Maximum likelihood approaches for sound field measurement using LDV	95
<i>C. Mellet and J.-C. Valière</i>	

CHAPTER II. SCALAR

II.1. Experimental investigation of heat transfer phenomena during direct contact condensation in the presence of non condensable gas by means of linear raman spectroscopy	113
<i>M. Goldbrunner, J. Karl and D. Hein</i>	
II.2. On the accuracy of scalar dissipation measurements by laser Rayleigh scattering	133
<i>P. Ferrão, M. V. Heitor and R. Salles</i>	
II.3. Demonstration of the applicability of a Background Oriented Schlieren (BOS) method	145
<i>H. Richard, M. Raffel, M. Rein, J. Kompenhans and G.E.A. Meier</i>	
II.4. Transient temperature measurement of unburned gas using optic heterodyne interferometry	157
<i>N. Kawahara, E. Tomita and H. Kamakura</i>	

CHAPTER III. MULTI-PHASE

III.1. Generic formulation of a generalized Lorenz-Mie theory for pulsed laser illumination	175
<i>G. Gouesbet, L. Mees and G. Grehan</i>	
III.2. Measurement and prediction of the gaussian beam effect in the phase Doppler technique	189
<i>A. Araneo, D. Damaschke, and C. Tropea</i>	
III.3. Measurements of spray flow by an Improved Interferometer Laser Imaging Droplet Sizing (ILIDS) system	209
<i>T. Kawaguchi, T. Kobayashi and M. Maeda</i>	
III.4. Two-dimensional imaging of sizes and number densities of nanoscaled particles	221
<i>H. Geitlinger, B. Jungfleisch, T. Lehre, T. Streibel, R. Suntz and H. Bockhorn</i>	
III.5. Simultaneous measurement of velocity and particle size profiles with the reference beam technique	251
<i>M. Borys, V. Strunck, H. Muller and D. Dopheide</i>	
III.6. Instantaneous whole field measurement of velocity and size of air microbubbles in two-phase flows using DDPIV	269
<i>F. Pereira, M. Gharib, D. Dabiri, and D. Modarress</i>	
III.7. Liquid PIV measurements around a single gas slug rising through stagnant liquid in vertical pipes	289
<i>S. Nogueira, I. Dias, A.M.F.R. Pinto and M.L. Riethmuller</i>	
III.8. PIV applied to landslide generated impulse waves	305
<i>H. M. Fritz</i>	

CHAPTER IV. TURBULENT FLOWS

IV.1. Behaviour of trailing vortices in the vicinity of the ground	323
<i>G. Pailhas, X. Saint Victor and Y. Touvet</i>	
IV.2. Investigation of the mixing process in an axisymmetric turbulent jet using PIV and LIF	339
<i>C. Fukushima, L. Aanen and J. Westerweel</i>	
IV.3. LDA- measurements of jets in crossflow for effusion cooling applications	357
<i>K.M. B. Gustafsson</i>	
IV.4. Characterisation of confinement and impingement effects on the near field of axisymmetric jets	373
<i>I. Serres, C. Chauveau, B. Sarh, and I. Gökalp</i>	
IV.5. PIV measurements in a co-flowing jets subjected to axial forcing: vorticity and strain field structure	387
<i>U. Ruiz-Rivas, A. Lecuona, P. Rodriguez and J. Nogueira</i>	

IV.6. Laser-optical observation of chaotic mixing structure in a stirred vessel <i>T. Makino, T. Kaise, N. Ohmura and K. Kataoka</i>	399
IV.7. Stereoscopic PIV measurement of a lobed jet mixing flow <i>H. Hu, T. Saga, T. Kobayashi and N. Taniguchi</i>	411
IV.8. Point and planar LIF for velocity-concentration correlations in a jet in cross flow <i>K. E. Meyer, O. Özcan and P. S. Larse</i>	437
IV.9. Structure of wall-eddies at $Re_\theta \geq 10^6$ <i>S. E. Hommema and R. J. Adrian</i>	449
CHAPTER V. COMBUSTION AND ENGINES	
V.1. Computer tomography of infra-red absorption and its application to internal- combustion engines <i>H. Kawazoe and J. H. Whitelaw</i>	465
V.2. A sensor for measuring CO_2 gas temperature and concentration using $2\mu\text{m}$ DFB semiconductor laser <i>Y. Ikeda, G-M. Choi, D-H. Chung, K. Fukuzato and T. Nakajima</i>	483
V.3. Measurement of instantaneous 2-D velocity field and local chemiluminescence in a premixed-spray flame by PIV and MICRO system <i>S. Tsushima, M. Negoro, H. Saitoh, M. Fuchihata, F. Akamatsu and M. Katsuki</i>	497
V.4. Phase discrimination inside a spray: LDV measurements using fluorescent seeding particles (FLDV)..... <i>G. Rottenkolber, R. Meier, O. Schäfer, S. Wachter, K. Dullenkopf and S. Wittig</i>	511
V.5. Effect of strain rate on NOx reduction in an opposed impinging jet flame combustor <i>S. Lim, Y. Yoon, C. Lee and I. S. Jeung</i>	527
V.6. Fluid image velocimetry of the flow in the recirculation zone of a bluff body stabilized and controlled burner <i>B. Golovanevsky and Y. Levy</i>	541
Author Index	565