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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Assessment of Different SPIV Processing Methods for an Application to Near-Wall Turbulence -- Joint Numerical and Experimental Investigation of the Flow Around a Circular Cylinder at High Reynolds Number -- Natural Gas Burners for Domestic and Industrial Appliances. -- PIV Application to Fluid Dynamics of Bass Reflex Ports -- Overview on PIV Application to Appliances -- Selected Applications of Planar Imaging Velocimetry in Combustion Test Facilities -- Recent Applications of Particle Image Velocimetry to Flow Research in Thermal Turbomachinery -- Two-Phase PIV: Fuel-Spray Interaction with Surrounding Air -- High-Speed PIV: Applications in Engines and Future Prospects -- PIV in the Car Industry: State-of-the-Art and Future Perspectives -- Measurements and Simulations of the Flow Field in an Electrically Excited Meander Micromixer -- Evaluation of Large-Scale Wing Vortex Wakes from Multi-Camera PIV Measurements in Free-Flight Laboratory -- Aerodynamic Performance Degradation Induced by Ice Accretion. PIV Technique Assessment in Icing Wind Tunnel -- Analysis of the Vortex Street Generated at the Core-Bypass Lip of a Jet-Engine Nozzle -- PIV Measurements in Shock Tunnels and Shock Tubes -- Overview of PIV in Supersonic Flows

-- PIV Investigation of Supersonic Base-Flow–Plume Interaction --
Developments and Applications of PIV in Naval Hydrodynamics --
Characterization of Microfluidic Devices by Measurements with σ -PIV
and CLSM -- Time-Resolved PIV Measurements of Vortical Structures
in the Upper Human Airways -- PIV Measurements of Flows
in Artificial Heart Valves -- Particle Image Velocimetry
in Lung Bifurcation Models -- Tomographic 3D-PIV and Applications --
Recent Developments of PIV towards 3D Measurements -- Digital In-
Line Holography System for 3D-3C Particle Tracking Velocimetry --
Holographic PIV System Using a Bacteriorhodopsin (BR) Film.

Sommario/riassunto

Particle Image Velocimetry (PIV) is a non-intrusive optical measurement technique which allows capturing several thousand velocity vectors within large flow fields instantaneously. Today, the PIV technique has spread widely and differentiated into many distinct applications, from micro flows over combustion to supersonic flows for both industrial needs and research. Over the past decade the measurement technique and the hard- and software have been improved continuously so that PIV has become a reliable and accurate method for "real life" investigations. Nevertheless there is still an ongoing process of improvements and extensions of the PIV technique towards 3D, time resolution, higher accuracy, measurements under harsh conditions and micro- and macroscales. This book gives a synopsis of the main results achieved during the EC-funded network PivNet 2 as well as a survey of the state-of-the-art of scientific research using PIV techniques in different fields of application.
