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Soggetti	Fluid mechanics Flow chemistry Microfluidics Thermodynamics Heat engineering Heat - Transmission Mass transfer Mechanics, Applied Engineering Fluid Dynamics Flow Chemistry Engineering Thermodynamics, Heat and Mass Transfer Engineering Mechanics
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- Velocity from Flow Visualizations -- Skin Friction from Global Luminescent Oil-Film Visualizations -- Skin Friction from Surface Pressure Visualizations -- Skin Friction from Surface Temperature Visualizations -- Skin Friction from Surface Scalar Visualizations -- Skin Friction from Surface Optical Flow Pressure from Velocity -- Heat Flux from Surface Temperature Visualizations -- Analysis of Physics-Based Optical Flow.
Sommario/riassunto	This book describes unified image-based measurement methods (theories, numerical methods, and algorithms) to determine the important physical quantities of complex flows in engineering and natural systems, including velocity, pressure, temperature, heat

transfer, and skin friction. It presents a systematical study of the inverse problems in global flow diagnostics in a unified framework of the variational formulations. The authors further illustrate the main physical quantities in fluid mechanics, including velocity, pressure, skin friction and surface heat flux, extracted from flow visualization images obtained in experiments and observations. The developed methods are applicable in various image-based flow measurements in diverse disciplines ranging from fluid mechanics/aerodynamics to plenary sciences. .