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Titolo	Flow Visualization in Materials Processing : Practical Techniques and Selected Applications / / by Tomomasa Uemura, Yoshiaki Ueda, Manabu Iguchi
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ISBN	4-431-56567-1
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (XIII, 218 p. 194 illus., 48 illus. in color.)
Collana	Mathematics for Industry, , 2198-350X ; ; 27
Disciplina	530.414
Soggetti	Fluid mechanics Manufactures Materials—Surfaces Thin films Nanotechnology Fluids Engineering Fluid Dynamics Manufacturing, Machines, Tools, Processes Surfaces and Interfaces, Thin Films Nanotechnology and Microengineering Fluid- and Aerodynamics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	From the Contents: Multi-phase flow and enhancement of reaction in materials processing -- Generation method of bubble and droplet -- Experimental setup -- Practical visualization techniques for photography -- Image analysis -- Visualization of flow induced by dispersion -- Flow velocimetry of immiscible two liquids near the interface -- Behavior of a rising bubble through oil/water interface -- Jet-induced rotary sloshing in a cylindrical container.
Sommario/riassunto	This book presents a comprehensive review of particle image velocimetry (PIV) and particle tracking velocimetry (PTV) as tools for experimental fluid dynamics (EFD). It shares practical techniques for high-speed photography to accurately analyze multi-phase flows; in

particular, it addresses the practical know-how involved in high-speed photography, including e.g. the proper setup for lights and illumination; optical systems to remove perspective distortion; and the density of tracer particles and their fluorescence in the context of PIV and PTV. In this regard, using the correct photographic technique plays a key role in the accurate analysis of the respective flow. Practical applications include bubble and liquid flow dynamics in materials processes agitated by gas injection at high temperatures, mixing phenomena due to jet-induced rotary sloshing, and wettability effects on the efficiency of the processes. .