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Descrizione fisica	1 online resource (1589 p.)
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Soggetti	Fluid mechanics Chemical engineering Industrial engineering Production engineering Thermodynamics Heat engineering Heat - Transmission Mass transfer Mathematical models Engineering Fluid Dynamics Industrial Chemistry/Chemical Engineering Industrial and Production Engineering Engineering Thermodynamics, Heat and Mass Transfer Mathematical Modeling and Industrial Mathematics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	From the Contents: Single Phase Flow -- Elementary Kinetic Theory of Gases -- Multiphase Flow -- Flows of Granular Materials -- Interfacial Transport Phenomena Closures -- Chemical Reaction Engineering -- Agitation and Fluid Mixing Technology -- Bubble Column Reactors -- The Population Balance Equation.

Chemical Reactor Modeling closes the gap between Chemical Reaction Engineering and Fluid Mechanics. The second edition consists of two volumes: Volume 1: Fundamentals. Volume 2: Chemical Engineering Applications. In volume 1 most of the fundamental theory is presented. A few numerical model simulation application examples are given to elucidate the link between theory and applications. In volume 2 the chemical reactor equipment to be modeled are described. Several engineering models are introduced and discussed. A survey of the frequently used numerical methods, algorithms and schemes is provided. A few practical engineering applications of the modeling tools are presented and discussed. The working principles of several experimental techniques employed in order to get data for model validation are outlined. The monograph is based on lectures regularly taught in the fourth and fifth years graduate courses in transport phenomena and chemical reactor modeling, and in a post graduate course in modern reactor modeling at the Norwegian University of Science and Technology, Department of Chemical Engineering, Trondheim, Norway. The objective of the book is to present the fundamentals of the single-fluid and multi-fluid models for the analysis of single- and multiphase reactive flows in chemical reactors with a chemical reactor engineering rather than mathematical bias. Organized into 13 chapters, it combines theoretical aspects and practical applications and covers some of the recent research in several areas of chemical reactor engineering. This book contains a survey of the modern literature in the field of chemical reactor modeling.
