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Nota di contenuto	Fundamental Theory of Multiphase Flows -- Basic Theory and Conceptual Framework of Multiphase Flows -- Turbulence in Multiphase Flows -- Review of Subcooled Boiling Flow Models -- -

Multiphase Flow Measurements using PIV and LIF -- Theoretical/Computational Multiphase Flows -- -Recent Advances in Modelling Gas-Liquid Flows -- Euler-Euler-Modelling of Poly-dispersed Bubbly Flows -- Euler-Euler-Modelling of Segregated Flows and Flows with Transitions Between Different Flow Morphologies -- Recent Advances in Modelling Subcooled Boiling Flows -- Computational Simulations of Microbubbles -- Recent Advances in Modelling Gas-Particle Flows -- Numerical Modelling of Pulverised Coal Combustion -- Challenges in Modelling Sprays in Internal Combustion Engine -- Recent Advances in DEM Modelling -- Experimental Multiphase Flows -- Flooding Phenomenon of Cyrogenic Liquids -- Cavitating Flow of Cyrogenic Fluids -- Imaging Measuring Techniques -- TOPFLOW-Experiments in Vertical Pipes -- Applications of Multiphase Flows -- Multiphase Flows in Biomedical Applications -- Flow Boiling Enhancement via Cross-Sectional Expansion -- Slug Flow Heat Transfer in Microchannels -- Nanoparticle/Liquid Flow Applications -- Multiphase Flows in Pharmaceutical Applications.

Sommario/riassunto

This Handbook provides readers with the current cutting edge of multiphase flow technology. It reviews the rapid development of multiphase flow technology, demonstrates the latest development of the technology, and showcase the very latest applications. It provides readers with comprehensive updated reference information covering theory, modelling and numerical methods, design and measurement, and new applications in multiphase flow systems. The Handbook consists of three parts or volumes: 1. Theory: describes the fundamentals including the concepts and definitions of multiphase flows. Classifications of multiphase flows. Basic understanding of different length scales involved – micro/nano, meso and macro. Treatment of such flows by different solution frameworks. 2. Modelling and Measurement: covers both classical and state-of the-art measurement and modelling approaches to resolve different classifications of multiphase flows. 3. Applications: highlights the very latest applications of measurement and modelling approaches in tackling different classification of multiphase flows in a variety of natural, biological and industrial systems and different length scales.