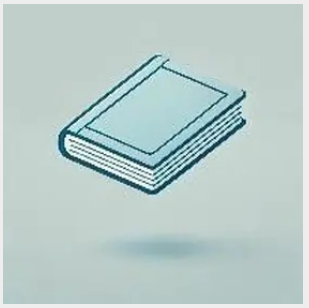
Sun / Manickam / Wang

Hydrodynamic Cavitation

Fundamentals, Design and Applications in Process Intensification



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Hydrodynamic Cavitation: Fundamentals, Design and Applications in Process Intensification offers a comprehensive introduction and in-depth insights into this promising engineering approach. Covering fundamental principles, flow dynamics, experimental and numerical analysis, and reactor design, this book explores a wide range of applications including water treatment, biodiesel production, biomass pre-treatment, and food processing, among others. It serves as an essential resource for researchers, engineers, and students eager to harness hydrodynamic cavitation (HC) for industrial innovations. The book is organized into key chapters that detail the cavitating flow mechanisms, advanced measurement and simulation techniques, and practical design strategies for scalable, cost-effective HC systems. It also provides in-depth discussions on optimizing energy efficiency and applying HC across diverse fields such as sludge management, resource recovery, flotation, desulfurization, denitrification, and lab-on-a-chip devices. With this structure, readers gain both theoretical foundations and practical guidance.

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