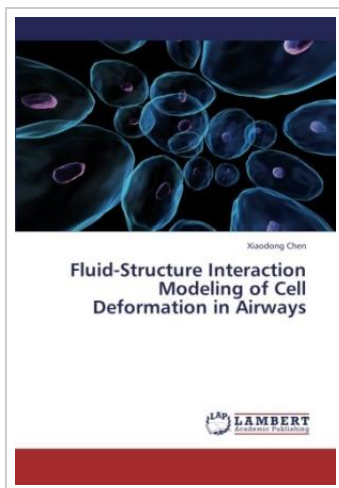




Fluid-Structure Interaction Modeling of Cell Deformation in Airways

By Xiaodong Chen

LAP LAMBERT Academic Publishing. Paperback. Condition: New. 268 pages. Dimensions: 8.7in. x 5.9in. x 0.6in. This book introduces an integrated experimental-computational approach to investigate the mechanisms responsible for microbubble-induced injury during mechanical ventilation of patients with Acute Lung Injury and Acute Respiratory Distress Syndrome. In this approach, a computational model was developed to account for a minimal level of complexity required, but with significantly complex dynamics such as fluid-structure interaction. Once validated, these quantitative models of respiratory physiology are then being used to interpret counter-intuitive experimental data, suggest new avenues of investigation and develop novel patient-specific therapies. The author discusses key concepts and principles, such as cellular engineering and biomechanics, respiratory system, epithelial cell injury, multi-scale computational modeling and molecular/cellular scale imaging and analysis. This textbook presents state-of-the-art analytical and computational approaches to problems in fluid-structure interaction and free surface flow. This book should be an important reference for any researcher interested in the fundamental science and simulation techniques for flow in the respiratory system. This item ships from multiple locations. Your book may arrive from Roseburg, OR, La Vergne, TN. Paperback.



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