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| Nota di contenuto | Introduction to Atomistic Modeling and Simulation of Biomolecular Systems -- Investigating -- Cardiovascular Function Modulation via Atomistic Modeling and Simulations -- Bifurcation Phenomena in Cardiac System and Its Analyzes -- Modeling and simulation of drug actions on cardiac ion channels and myocytes -- Modeling the Function of Myoglobin in Myocardium -- Population based computational approaches to investigate cardiac arrhythmia risk. |
| Sommario/riassunto | The Handbook of Modern Biophysics series focuses on current biophysics topics and presents fundamental concepts and biomedical application in biology, medical, engineering, mathematics, and physical-science students or researchers. The reader can learn to use |

novel biophysics techniques to address a range of research challenges. Each chapter develops the conceptual framework of the physics formalism and illustrates the biomedical applica-tions. With the addition of problem sets, guides to further study, and references, the interested reader can continue to independently explore the ideas presented in the chapters. Volume 7: Molecular and Computational Modeling of Cardiac Function Editor Thomas Jue, PhD In Molecular and Computational Modeling of Cardiac Function, a group of prominent professors and researchers explain the fundamental concepts of molecular modeling and illustrate the biomedical applications. The book covers the following topics: Principles of atomistic modeling and simulation of biomolecular systems. Using atomistic modeling to predict the cardiotoxicity of an arrhythmia drug molecule. Bifurcation phenomena in cardiac system as control design of automaticity and arrhythmia. Modeling the role of myoglobin as a fatty acid transporter. Population-based computational approaches to investigate cardiac arrhythmia. About the Editor Thomas Jue is Professor of Biochemistry and Molecular Medicine at the University of California Davis. He is an internationally recognized expert in developing and applying magnetic resonance techniques to study animal as well as human physiology in vivo and has published extensively in the field of magnetic resonance spectroscopy and imaging, near-infrared spectroscopy, bioenergetics, cardiovascular regulation, exercise, and marine biology. He served as a Chair of the Biophysics Graduate Group Program at UC Davis, where he started to redesign a graduate curriculum that balanced physical science/mathematics formalism and biomedical perspective and has continued to promote interdisciplinary interest at the interface of physical science, engineering, mathematics, biology, and medicine. The Handbook of Modern Biophysics represents an aspect of that effort.