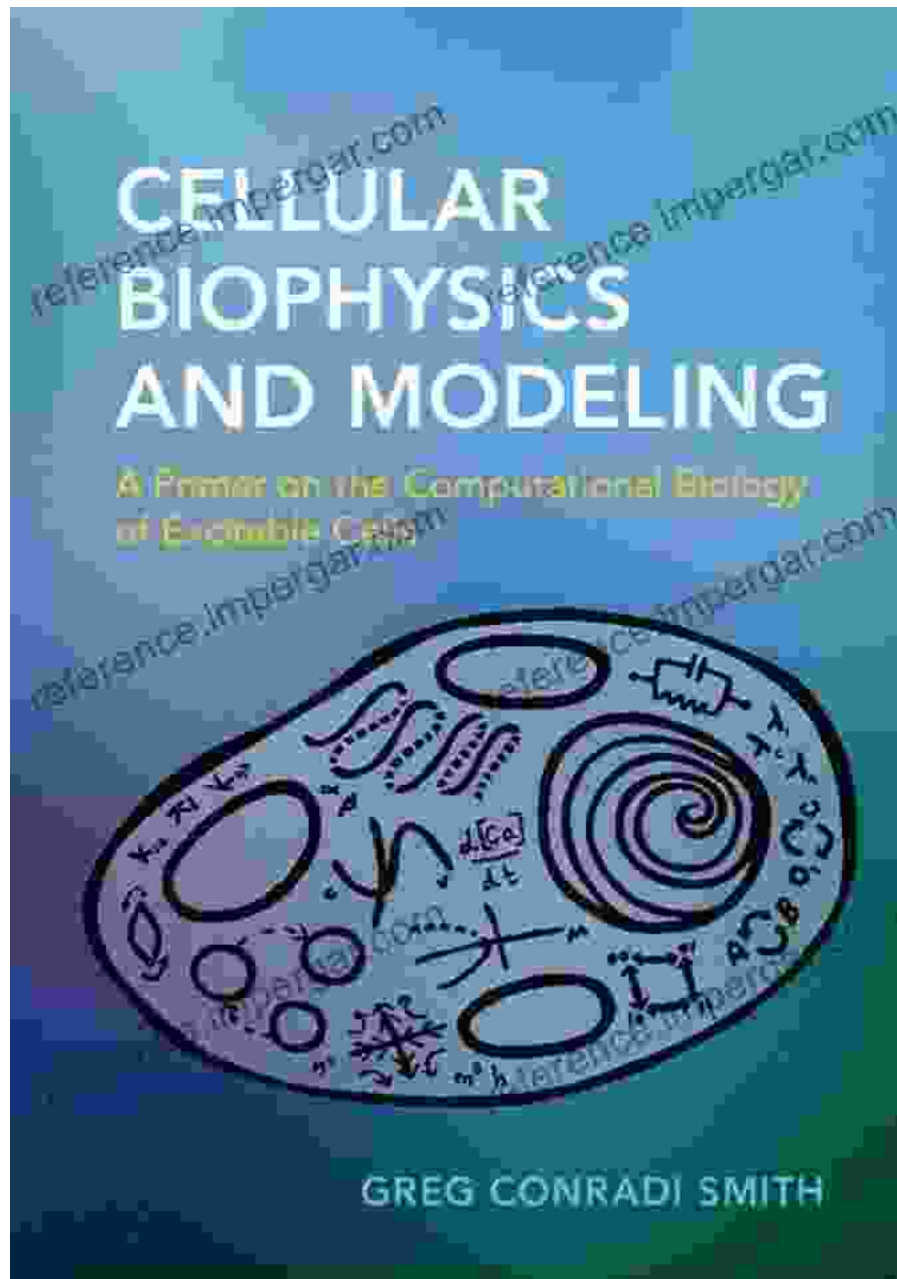


Unveiling the Microscopic Realm: A Comprehensive Guide to Cellular Biophysics and Modeling

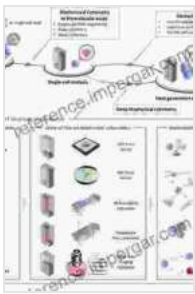


The field of cellular biophysics and modeling is a rapidly growing and exciting discipline that seeks to understand the behavior of cells at the

molecular and microscopic level. This book provides a comprehensive overview of the latest advances in this field, with a focus on the application of physical principles and mathematical models to cell biology.

Chapter 1: Basic Principles of Cellular Biophysics

This chapter introduces the basic principles of cellular biophysics, including the laws of thermodynamics, the principles of diffusion and osmosis, and the mechanical properties of cells.



Cellular Biophysics and Modeling: A Primer on the Computational Biology of Excitable Cells

★★★★☆ 4.3 out of 5

Language : English
File size : 22533 KB
Text-to-Speech : Enabled
Screen Reader : Supported
Enhanced typesetting : Enabled
Print length : 386 pages



Chapter 2: Membrane Biophysics

This chapter discusses the biophysics of cell membranes, including the structure and function of the lipid bilayer, the role of membrane proteins, and the mechanisms of membrane transport.

Chapter 3: Cytoskeletal Biophysics

This chapter focuses on the cytoskeleton, a network of protein filaments that provides structural support to cells and plays a role in cell motility.

Chapter 4: Molecular Motors and Cellular Dynamics

This chapter explores the role of molecular motors, such as kinesin and dynein, in driving cellular processes such as cell division and organelle transport.

Chapter 5: Cell Signaling and Communication

This chapter examines the mechanisms of cell signaling and communication, including the role of receptors, ligands, and signaling pathways.

Chapter 6: Computational Cell Biology

This chapter introduces the principles of computational cell biology, including the use of computer simulations to model cellular processes.

Chapter 7: Applications in Medicine and Biotechnology

This chapter discusses the applications of cellular biophysics and modeling in medicine and biotechnology, including the development of new drugs and therapies.

This book provides a comprehensive overview of the latest advances in cellular biophysics and modeling, making it an essential resource for researchers and students in this field.

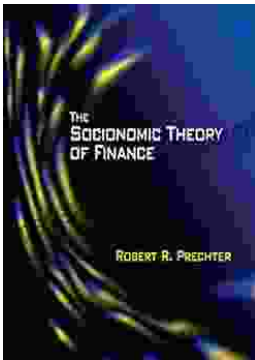


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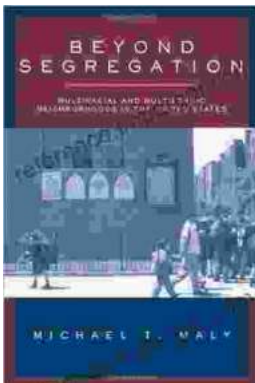
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