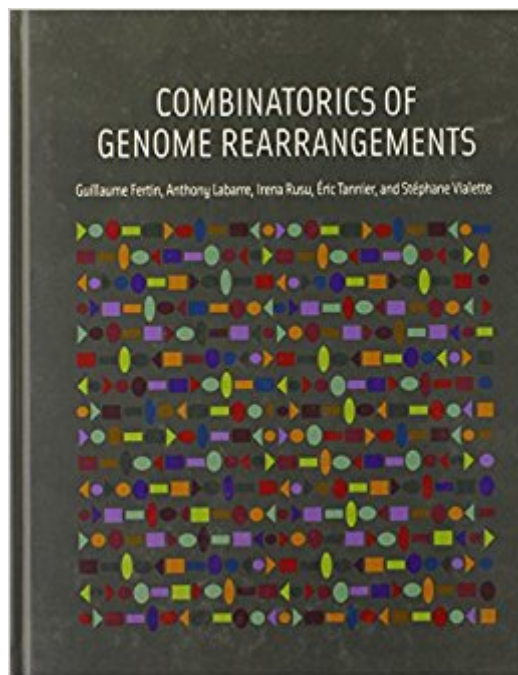




**Ebook Directory**  
the best source of ebook

The book was found

# Combinatorics Of Genome Rearrangements (Computational Molecular Biology)



## Synopsis

From one cell to another, from one individual to another, and from one species to another, the content of DNA molecules is often similar. The organization of these molecules, however, differs dramatically, and the mutations that affect this organization are known as genome rearrangements. Combinatorial methods are used to reconstruct putative rearrangement scenarios in order to explain the evolutionary history of a set of species, often formalizing the evolutionary events that can explain the multiple combinations of observed genomes as combinatorial optimization problems. This book offers the first comprehensive survey of this rapidly expanding application of combinatorial optimization. It can be used as a reference for experienced researchers or as an introductory text for a broader audience. Genome rearrangement problems have proved so interesting from a combinatorial point of view that the field now belongs as much to mathematics as to biology. This book takes a mathematically oriented approach, but provides biological background when necessary. It presents a series of models, beginning with the simplest (which is progressively extended by dropping restrictions), each constructing a genome rearrangement problem. The book also discusses an important generalization of the basic problem known as the median problem, surveys attempts to reconstruct the relationships between genomes with phylogenetic trees, and offers a collection of summaries and appendixes with useful additional information.

## Book Information

Series: Computational Molecular Biology

Hardcover: 304 pages

Publisher: The MIT Press; 1 edition (June 5, 2009)

Language: English

ISBN-10: 0262062828

ISBN-13: 978-0262062824

Product Dimensions: 7 x 0.5 x 9 inches

Shipping Weight: 1.4 pounds (View shipping rates and policies)

Average Customer Review: Be the first to review this item

Best Sellers Rank: #2,785,406 in Books (See Top 100 in Books) #93 in [Books > Science & Math > Mathematics > Applied > Biomathematics](#) #640 in [Books > Computers & Technology > Computer Science > Bioinformatics](#) #675 in [Books > Textbooks > Medicine & Health Sciences > Medicine > Basic Sciences > Genetics](#)

## Customer Reviews

This book will be a defining book for the field of genome rearrangement and is destined to become a classic as soon as it hits the bookshelves. The authors have done an excellent job in presenting one of the most technically challenging areas of computational biology in an easily understood manner. Dobzhansky and Sturtevant would not be disappointed. (Pavel Pevzner, Ronald R. Taylor Chair of Computer Science, Director, Interdisciplinary Bioinformatics Program, University of California, San Diego) Combinatorics of Genome Rearrangement is the first computer science monograph on this rapidly expanding field. The authors have managed the seemingly impossible feat of combining scope and coherence; they have pulled together all the disparate research lines and integrated them through a common treatment and notation. This volume is simultaneously an accessible computational biology textbook for computer science and bioinformatics students, an easy and thorough entry to the field for professionals attracted by the novelty and diversity of the problems in the field, and an up-to-date reference book for specialists. (David Sankoff, Department of Mathematics and Statistics, University of Ottawa)

Guillaume Fertin is Professor of Computer Science at the University of Nantes. Anthony Labarre received a PhD in Mathematics and Computer Science from the Université libre de Bruxelles. Irena Rusu is Professor of Computer Science at the University of Nantes. Eric Tannier is a Researcher at the INRIA, in the Laboratory of Biometrics and Evolutionary Biology of the University of Lyon. Stéphane Vialette is a Researcher in the Gaspard-Monge Institute of Electronics and Computer Science at the University of Paris-Est Marne-la-Vallée. Guillaume Fertin is Professor of Computer Science at the University of Nantes. Anthony Labarre received a PhD in Mathematics and Computer Science from the Université libre de Bruxelles. Irena Rusu is Professor of Computer Science at the University of Nantes. Eric Tannier is a Researcher at the INRIA, in the Laboratory of Biometrics and Evolutionary Biology of the University of Lyon. Stéphane Vialette is a Researcher in the Gaspard-Monge Institute of Electronics and Computer Science at the University of Paris-Est Marne-la-Vallée.

[Download to continue reading...](#)

Combinatorics of Genome Rearrangements (Computational Molecular Biology) Current Topics in Computational Molecular Biology (Computational Molecular Biology) Molecular Rearrangements in Organic Synthesis The Deeper Genome: Why there is more to the human genome than meets the eye Molecular Biology (WCB Cell & Molecular Biology) An Introduction to Bioinformatics Algorithms (Computational Molecular Biology) Biological Modeling and Simulation: A Survey of Practical Models, Algorithms, and Numerical Methods (Computational Molecular Biology) Molecular and

Genome Evolution Molecular Analysis and Genome Discovery Rearrangements in Ground and  
Excited States 2 (Organic Chemistry, a Series of Monographs) An Introduction to Systems Biology:  
Design Principles of Biological Circuits (Chapman & Hall/CRC Mathematical and Computational  
Biology) Computational Fluid Mechanics and Heat Transfer, Third Edition (Series in Computational  
and Physical Processes in Mechanics and Thermal Sciences) Theoretical Neuroscience:  
Computational and Mathematical Modeling of Neural Systems (Computational Neuroscience Series)  
Simulating Enzyme Reactivity: Computational Methods in Enzyme Catalysis (Theoretical and  
Computational Chemistry Series) Computational Approaches to Protein Dynamics: From Quantum  
to Coarse-Grained Methods (Series in Computational Biophysics) The Power of Computational  
Thinking: Games, Magic and Puzzles to Help You Become a Computational Thinker  
Bacteriophages: Methods and Protocols, Volume 2: Molecular and Applied Aspects (Methods in  
Molecular Biology) Entropy-Driven Processes in Biology: Polymerization of Tobacco Mosaic Virus  
Protein and Similar Reactions (Molecular Biology, Biochemistry and Biophysics Molekularbiologie,  
Biochemie und Biophysik) Understanding Molecular Simulation, Second Edition: From Algorithms to  
Applications (Computational Science Series, Vol 1) Computational Chemistry: Introduction to the  
Theory and Applications of Molecular and Quantum Mechanics

[Contact Us](#)

[DMCA](#)

[Privacy](#)

[FAQ & Help](#)