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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Invited Papers -- Cells as Computation -- Formal Modeling of C. elegans Development: A Scenario-Based Approach -- Regular Papers -- Causal ?-Calculus for Biochemical Modelling -- Graphs for Core Molecular Biology -- Contribution of Computational Tree Logic to Biological Regulatory Networks: Example from Pseudomonas Aeruginosa -- Modeling Cellular Behavior with Hybrid Automata: Bisimulation and Collapsing -- Multiscale Modeling of Alternative Splicing Regulation -- A Method for Estimating Metabolic Fluxes from Incomplete Isotopomer Information -- Dynamic Bayesian Network and Nonparametric Regression for Nonlinear Modeling of Gene Networks

from Time Series Gene Expression Data -- Discrete Event Simulation for a Better Understanding of Metabolite Channeling - A System Theoretic Approach -- Mathematical Modeling of the Influence of RKIP on the ERK Signaling Pathway -- A Method to Identify Essential Enzymes in the Metabolism: Application to Escherichia Coli -- Symbolic Model Checking of Biochemical Networks -- Presentation Abstracts -- Coupled Oscillator Models for a Set of Communicating Cells -- Representing and Simulating Protein Functional Domains in Signal Transduction Using Maude -- A Core Modeling Language for the Working Molecular Biologist (Abstract) -- Integrating Simulation Packages via Systems Biology Mark-Up Language -- Recreating Biopathway Databases towards Simulation -- How to Synthesize an Optimized Genetic ?-Switching System? A System-Theoretic Approach Based on SQP -- Simulation Sudy of the TNF? Mediated NF-?B Signaling Pathway -- Detection and Analysis of Unexpected State Components in Biological Systems -- Model Validation of Biological Pathways Using Petri Nets - Demonstrated for Apoptosis -- An Overview of Data Models for the Analysis of Biochemical Pathways -- Discrete Event Systems and Client-Server Model for Signaling Mechanisms -- Position Papers -- Enhanced Operational Semantics in Systems Biology -- Issues in Computational Methods for Functional Genomics and Systems Biology -- Integrating Biological Process Modelling with Gene Expression Data and Ontologies for Functional Genomics (Position Paper) -- Computer Simulation of Protocells -- How to Solve Semantic Puzzles of Systems Biology -- Evolution as Design Engineer -- Inference, Modeling and Simulation of Gene Networks.