1. Record Nr. UNINA9910140822903321

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| Titolo | 2010 Shape Modeling International Conference |
| Pubbl/distr/stampa | [Place of publication not identified], : I E E E, 2010 |
| ISBN | 9781424472604<br>1424472601 |
| Descrizione fisica | 1 online resource : illustrations |
| Disciplina | 006.6 |
| Soggetti | Computer graphics<br>Engineering models |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Bibliographic Level Mode of Issuance: Monograph |

2. Record Nr. UNINA9910484496803321

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| Autore | Lei Jinzhi |
| Titolo | Systems Biology : Modeling, Analysis, and Simulation / / by Jinzhi Lei |
| Pubbl/distr/stampa | Cham : , : Springer International Publishing : , : Imprint : Springer, , 2021 |
| ISBN | 3-030-73033-6 |
| Edizione | [1st ed. 2021.] |
| Descrizione fisica | 1 online resource (XII, 308 p. 95 illus., 69 illus. in color.) |
| Collana | Lecture Notes on Mathematical Modelling in the Life Sciences, , 2193-4797 |
| Disciplina | 570.15 |
| Soggetti | Differential equations<br>Stochastic models<br>Bioinformatics<br>Biology<br>Cytology<br>Differential Equations<br>Stochastic Modelling<br>Computational and Systems Biology<br>Biological Sciences<br>Cell Biology |

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| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Nota di bibliografia | Includes bibliographical references and index. |
| Nota di contenuto | 1. Biological Background–Information, Energy, and Matter -- 2. Mathematical Preliminary–Continuous Dynamics -- 3. Mathematical Preliminary–Stochastic Modeling -- 4. Stochastic Modeling of Gene Expression -- 5. Mathematical Models for Gene Regulatory Network Dynamics -- 6. Dynamical Modeling of Stem Cell Regeneration -- 7. Mathematical Models of Morphogen Gradients and Growth Control. |
| Sommario/riassunto | This book discusses the mathematical simulation of biological systems, with a focus on the modeling of gene expression, gene regulatory networks and stem cell regeneration. The diffusion of morphogens is addressed by introducing various reaction-diffusion equations based on different hypotheses concerning the process of morphogen gradient formation. The robustness of steady-state gradients is also covered through boundary value problems. The introduction gives an overview of the relevant biological concepts (cells, DNA, organism development) and provides the requisite mathematical preliminaries on continuous dynamics and stochastic modeling. A basic understanding of calculus is assumed. The techniques described in this book encompass a wide range of mechanisms, from molecular behavior to population dynamics, and the inclusion of recent developments in the literature together with first-hand results make it an ideal reference for both new students and experienced researchers in the field of systems biology and applied mathematics. |