
Description: Illustrates the application of mathematical and computational modeling in a variety of disciplines

With an emphasis on the interdisciplinary nature of mathematical and computational modeling, Mathematical and Computational Modeling: With Applications in the Natural and Social Sciences, Engineering, and the Arts features chapters written by well-known, international experts in these fields and presents readers with a host of state-of-the-art achievements in the development of mathematical modeling and computational experiment methodology. The book is a valuable guide to the methods, ideas, and tools of applied and computational mathematics as they apply to other disciplines such as the natural and social sciences, engineering, and technology. Mathematical and Computational Modeling: With Applications in the Natural and Social Sciences, Engineering, and the Arts also features:

- Rigorous mathematical procedures and applications as the driving force behind mathematical innovation and discovery
- Numerous examples from a wide range of disciplines to emphasize the multidisciplinary application and universality of applied mathematics and mathematical modeling
- Original results on both fundamental theoretical and applied developments in diverse areas of human knowledge
- Discussions that promote interdisciplinary interactions between mathematicians, scientists, and engineers

Mathematical and Computational Modeling: With Applications in the Natural and Social Sciences, Engineering, and the Arts is an ideal resource for professionals in various areas of mathematical and statistical sciences, modeling and simulation, physics, computer science, engineering, biology and chemistry, industrial, and computational engineering. The book also serves as an excellent textbook for graduate courses in mathematical modeling, applied mathematics, numerical methods, operations research, and optimization.

Roderick Melnik, PhD, is Professor in the Department of Mathematics at Wilfrid Laurier University, Canada, where he is also Tier I Canada Research Chair in Mathematical Modeling. He is internationally known for his research in computational and applied mathematics, numerical analysis, and mathematical modeling for scientific and engineering applications. Dr. Melnik is the recipient of many awards, including a number of prestigious fellowships in Italy, Denmark, England and Spain. He has published over 300 refereed research papers and has served on editorial boards of numerous international journals and book series. Currently, Dr. Melnik is Director of the MS2Discovery Interdisciplinary Research Institute in Waterloo, Canada.

Contents:

LIST OF CONTRIBUTORS xiii

PREFACE xv

SECTION 1 INTRODUCTION 1

1 Universality of Mathematical Models in Understanding Nature, Society, and Man–Made World 3
   Roderick Melnik

   1.1 Human Knowledge, Models, and Algorithms 3

   1.2 Looking into the Future from a Modeling Perspective 7

   1.3 What This Book Is About 10

   1.4 Concluding Remarks 15
5 A Model for the Spread of Tuberculosis with Drug-Sensitive and Emerging Multidrug-Resistant and Extensively Drug-Resistant Strains 101
Julien Arino and Iman A. Soliman

5.1 Introduction 101

5.2 Discussion 117

References 119

6 The Need for More Integrated Epidemic Modeling with Emphasis on Antibiotic Resistance 121
Eili Y. Klein, Julia Chelen, Michael D. Makowsky, and Paul E. Smaldino

6.1 Introduction 121

6.2 Mathematical Modeling of Infectious Diseases 122

6.3 Antibiotic Resistance, Behavior, and Mathematical Modeling 125

6.4 Conclusion 128

References 129

SECTION 4 MATHEMATICAL MODELS AND ANALYSIS FOR SCIENCE AND ENGINEERING 135

7 Data-Driven Methods for Dynamical Systems: Quantifying Predictability and Extracting Spatiotemporal Patterns 137
Dimitrios Giannakis and Andrew J. Majda

7.1 Quantifying Long-Range Predictability and Model Error through Data Clustering and Information Theory 138

7.2 NLSA Algorithms for Decomposition of Spatiotemporal Data 163

7.3 Conclusions 184

References 185

8 On Smoothness Concepts in Regularization for Nonlinear Inverse Problems in Banach Spaces 192
Bernd Hofmann

8.1 Introduction 192

8.2 Model Assumptions, Existence, and Stability 195

8.3 Convergence of Regularized Solutions 197

8.4 A Powerful Tool for Obtaining Convergence Rates 200

8.5 How to Obtain Variational Inequalities? 206

8.6 Summary 215

References 215

9 Initial and Initial-Boundary Value Problems for First-Order Symmetric Hyperbolic Systems with Constraints 222
Nicolae Tarfulea

9.1 Introduction 222

9.2 FOSH Initial Value Problems with Constraints 223
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