Record Nr. UNINA9910144124503321 Autore Kojic Milos <1941-> Titolo Computer modeling in bioengineering: theoretical background, examples and software / / Milos Kojic [and three others] England:,: John Wiley & Sons,, [2008] Pubbl/distr/stampa **ISBN** 1-281-84085-8 9786611840853 0-470-75176-2 0-470-75175-4 Descrizione fisica 1 online resource (472 pages) Disciplina 610.28 Biomedical engineering - Computer simulation Soggetti Lingua di pubblicazione Inglese **Formato** Materiale a stampa Monografia Livello bibliografico Note generali Description based upon print version of record. Includes bibliographical references and index. Nota di bibliografia Nota di contenuto Computer Modeling in Bioengineering: Contents; Contributors; Preface; Part I Theoretical Background of Computational Methods: 1 Notation -Matrices and Tensors: 2 Fundamentals of Continuum Mechanics: 3 Heat Transfer, Diffusion, Fluid Mechanics, and Fluid Flow through Porous Deformable Media: Part II Fundamentals of Computational Methods: 4 Isoparametric Formulation of Finite Elements: 5 Dynamic Finite Element Analysis: 6 Introduction to Nonlinear Finite Element Analysis: 7 Finite Element Modeling of Field Problems; 8 Discrete Particle Methods for Modeling of Solids and Fluids Part III Computational Methods in Bioengineering9 Introduction to Bioengineering; 10 Bone Modeling; 11 Biological Soft Tissue; 12 Skeletal Muscles: 13 Blood Flow and Blood Vessels: 14 Modeling Mass Transport and Thrombosis in Arteries; 15 Cartilage Mechanics; 16 Cell Mechanics; 17 Extracellular Mechanotransduction: Modeling Ligand Concentration Dynamics in the Lateral Intercellular Space of Compressed Airway Epithelial Cells; 18 Spider Silk: Modeling Solvent Removal during Synthetic and Nephila clavipes Fiber Spinning; 19 Modeling in Cancer Nanotechnology; Index; Plates

Bioengineering is a broad-based engineering discipline that applies engineering principles and design to challenges in human health and

Sommario/riassunto

medicine, dealing with bio-molecular and molecular processes, product design, sustainability and analysis of biological systems. Applications that benefit from bioengineering include medical devices, diagnostic equipment and biocompatible materials, amongst others. Computer Modeling in Bioengineering offers a comprehensive reference for a large number of bioengineering topics, presenting important computer modeling problems and solutions for research