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Denmark; 2.3.4 U.S. Systems Biology Efforts; 2.4 Biophysical Modeling; 2.4.1 International Physiome Project; 2.4.2 EPFL Arterial Map; 2.4.3 EPFL Blue Brain Project; 2.4.4 U.S. Biophysical Modeling Efforts; 2.5 Summary of Key Findings; References; Chapter 3 MATERIALS SIMULATION; 3.1 Introduction; 3.2 Current State of the Art in Materials Simulation; 3.3 Materials Simulation Code Development; 3.4 Materials Simulation Highlights; 3.4.1 Mitsubishi Chemical; 3.4.2 Toyota Central R&D Labs, Inc.
3.4.3 Joint Laboratory of Polymer Science and Materials, Institute of Chemistry, Chinese Academy of Sciences3.4.4 Materials Simulation Code Development in the UK; 3.4.5 Fraunhofer Institute for the Mechanics of Materials; 3.4.6 Energy Applications of Materials at Daresbury Laboratory; 3.5 Summary of Key Findings; References; Chapter 4 ENERGY AND SUSTAINABILITY; 4.1 Introduction; 4.2 SBE&S Research Activities in North America; 4.2.1 Analysis of Energy and CO2 Emission; 4.2.2 Modeling System Reliability of Electric Power Networks
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Sommario/riassunto

Simulation-Based Engineering and Science (SBE&S) cuts across disciplines, showing tremendous promise in areas from storm prediction and climate modeling to understanding the brain and the behavior of numerous other complex systems. In this groundbreaking volume, nine distinguished leaders assess the latest research trends, as a result of 52 site visits in Europe and Asia and hundreds of hours of expert interviews, and discuss the implications of their findings for the US government. The authors conclude that while the US remains the quantitative leader in SBE&S research and development, it is very much in danger of losing that edge to Europe and Asia. WETC panel report commissioned by the National Science Foundation.