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Titolo	Cell Mapping Methods [[electronic resource] ] : Algorithmic Approaches and Applications // by Jian-Qiao Sun, Fu-Rui Xiong, Oliver Schütze, Carlos Hernández
Pubbl/distr/stampa	Singapore : , : Springer Singapore : , : Imprint : Springer, , 2019
ISBN	981-13-0457-2
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Descrizione fisica	1 online resource (XV, 226 p. 98 illus., 70 illus. in color.)
Disciplina	519
Soggetti	Applied mathematics Engineering mathematics Physics Mathematical and Computational Engineering Mathematical Methods in Physics Applications of Mathematics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Dynamical Systems -- Simple Cell Mapping -- Generalized Cell Mapping -- Hybrid Cell Mapping and Subdivision -- Post-Processing of Simple Cell Mapping -- Application-Global Analysis of Nonlinear Dynamical Systems -- Application-Finding Zeros of Nonlinear Algebraic Functions -- Application-Multi-Objective Optimization.
Sommario/riassunto	This book presents the latest algorithmic developments in the cell-mapping method for the global analysis of nonlinear dynamic systems, global solutions for multi-objective optimization problems, and global solutions for zeros of complex algebraic equations. It also discusses related engineering and scientific applications, including the nonlinear design of structures for better vibration resistance and reliability; multi-objective, structural-acoustic design for sound abatement; optimal multi-objective design of airfoils for better lift; and optimal multi-objective design of linear and nonlinear controls with or without time delay. The first book on the subject to include extensive Matlab and C++ codes, it presents various implementation algorithms of the

cell-mapping method, enabling readers to understand how the method works and its programming aspects. A link to the codes on the Springer website will be provided to the readers.

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