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| 1. | Record Nr. | UNINA9910150449303321 |
| | Autore | Kaveh A |
| | Titolo | Advances in Metaheuristic Algorithms for Optimal Design of Structures / / by A. Kaveh |
| | Pubbl/distr/stampa | Cham : , : Springer International Publishing : , : Imprint : Springer, , 2017 |
| | ISBN | 3-319-46173-7 |
| | Edizione | [2nd ed. 2017.] |
| | Descrizione fisica | 1 online resource (XVI, 631 p. 34 illus., 20 illus. in color.) |
| | Disciplina | 519 |
| | Soggetti | Applied mathematics<br>Engineering mathematics<br>Mathematical optimization<br>Mechanical engineering<br>Mathematical and Computational Engineering<br>Optimization<br>Mechanical Engineering |
| | Lingua di pubblicazione | Inglese |
| | Formato | Materiale a stampa |
| | Livello bibliografico | Monografia |
| | Nota di bibliografia | Includes bibliographical references. |
| | Nota di contenuto | Introduction -- Particle Swarm Optimization -- Charged System Search Algorithm -- Magnetic Charged System Search -- Field of Forces Optimization -- Dolphin Echolocation Optimization -- Colliding Bodies Optimization -- Ray Optimization Algorithm -- Modified Big Bang–Big Crunch Algorithm -- Cuckoo Search Optimization -- Imperialist Competitive Algorithm -- Chaos Embedded Metaheuristic Algorithms -- Enhanced Colliding Bodies Optimization -- Global Sensitivity Analysis-Based Optimization Algorithm -- Tug of War Optimization -- Water Evaporation Optimization Algorithm -- Vibrating Particles System Algorithm -- Cyclical Parthenogenesis Optimization Algorithm -- Optimal Design of large-scale Frame Structures -- Multi-Objective Optimization of Truss Structures. |
| | Sommario/riassunto | This book presents efficient metaheuristic algorithms for optimal design of structures. Many of these algorithms are developed by the author and his colleagues, consisting of Democratic Particle Swarm Optimization, Charged System Search, Magnetic Charged System |

Search, Field of Forces Optimization, Dolphin Echolocation Optimization, Colliding Bodies Optimization, Ray Optimization. These are presented together with algorithms which were developed by other authors and have been successfully applied to various optimization problems. These consist of Particle Swarm Optimization, Big Bang-Big Crunch Algorithm, Cuckoo Search Optimization, Imperialist Competitive Algorithm, and Chaos Embedded Metaheuristic Algorithms. Finally a multi-objective optimization method is presented to solve large-scale structural problems based on the Charged System Search algorithm. The concepts and algorithms presented in this book are not only applicable to optimization of skeletal structures and finite element models, but can equally be utilized for optimal design of other systems such as hydraulic and electrical networks. In the second edition seven new chapters are added consisting of the new developments in the field of optimization. These chapters consist of the Enhanced Colliding Bodies Optimization, Global Sensitivity Analysis, Tug of War Optimization, Water Evaporation Optimization, Vibrating Particle System Optimization and Cyclical Parthenogenesis Optimization algorithms. A chapter is also devoted to optimal design of large scale structures.