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| Livello bibliografico | Monografia |
| Note generali | Description based upon print version of record. |
| Nota di bibliografia | Includes bibliographical references. |
| Nota di contenuto | Theoretical background of the CBO algorithm: Introduction -- Colliding bodies optimization -- Enhanced versions of the CBO algorithm -- CBO for multi-objective optimization problem -- Applications of the CBO: CBO for optimal design of structures with continuous variables -- CBO for optimal design of structures with discrete variables -- Optimum design of castellated beams utilizing CBO -- CBO for optimal design of concrete structures -- CBO for p-median problems -- CBO for structuring sparse matrices -- BCO and ECBO in construction management -- Appendix: Computer codes for colliding bodies optimization and its different variants. |
| Sommario/riassunto | This book presents and applies a novel efficient meta-heuristic optimization algorithm called Colliding Bodies Optimization (CBO) for various optimization problems. The first part of the book introduces |

the concepts and methods involved, while the second is devoted to the applications. Though optimal design of structures is the main topic, two chapters on optimal analysis and applications in constructional management are also included. This algorithm is based on one-dimensional collisions between bodies, with each agent solution being considered as an object or body with mass. After a collision of two moving bodies with specified masses and velocities, these bodies again separate, with new velocities. This collision causes the agents to move toward better positions in the search space. The main algorithm (CBO) is internally parameter independent, setting it apart from previously developed meta-heuristics. This algorithm is enhanced (ECBO) for more efficient applications in the optimal design of structures. The algorithms are implemented in standard computer programming languages (MATLAB and C++) and two main codes are provided for ease of use.
