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| Titolo | Tensegrity Structures : Form, Stability, and Symmetry // by Jing Yao Zhang, Makoto Ohsaki |
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| ISBN | 4-431-54813-0 |
| Edizione | [1st ed. 2015.] |
| Descrizione fisica | 1 online resource (307 p.) |
| Collana | Mathematics for Industry, , 2198-350X ; ; 6 |
| Disciplina | 574.8764 |
| Soggetti | Mechanics Mechanics, Applied Manifolds (Mathematics) Complex manifolds Engineering design Interior architecture Statistical physics Solid Mechanics Manifolds and Cell Complexes (incl. Diff.Topology) Engineering Design Interior Architecture and Design Applications of Nonlinear Dynamics and Chaos Theory Classical Mechanics |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Description based upon print version of record. |
| Nota di bibliografia | Includes bibliographical references at the end of each chapters and index. |
| Nota di contenuto | Introduction -- Equilibrium -- Self-Equilibrium Analysis by Symmetry -- Stability -- Force Density Method -- Prismatic Structures of Dihedral Symmetry -- Star-Shaped Structures of Dihedral Symmetry -- Regular Truncated Tetrahedral Structures -- Linear Algebra -- Affine Motions and Rigidity Condition -- Tensegrity Tower -- Group Representation Theory and Symmetry-Adapted Matrix. |
| Sommario/riassunto | To facilitate a deeper understanding of tensegrity structures, this book focuses on their two key design problems: self-equilibrium analysis and stability investigation. In particular, high symmetry properties of |

the structures are extensively utilized. Conditions for self-equilibrium as well as super-stability of tensegrity structures are presented in detail. An analytical method and an efficient numerical method are given for self-equilibrium analysis of tensegrity structures: the analytical method deals with symmetric structures and the numerical method guarantees super-stability. Utilizing group representation theory, the text further provides analytical super-stability conditions for the structures that are of dihedral as well as tetrahedral symmetry. This book not only serves as a reference for engineers and scientists but is also a useful source for upper-level undergraduate and graduate students. Keeping this objective in mind, the presentation of the book is self-contained and detailed, with an abundance of figures and examples.
