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| Nota di contenuto | <p>1. Origin of Rubber Elasticity -- By Sanjay Pal, Mithun Das and Kinsuk Naskar -- 2. Nanostructures Failures and Fully Atomistic Molecular Dynamics Simulations -- By Jose Moreira de Sousa -- 3. Elements of the Nonlinear Theory of Elasticity Based on Tensor-Nonlinear Equations -- By Kirill F. Komkov -- 4. Obtaining of a Constitutive Models of Laminate Composite Materials -- By Mario Acosta Flores, Eusebio Jimenez Lopez and Marta Lilia Erana Diaz -- 5. Temperature Dependence of the Stress Due to Additives in KCl Single Crystals -- By Yohichi Kohzuki -- 6. Elasticity of Auxetic Materials -- By Jeremiah Rushchitsky -- 7. Perspective Chapter: Improvement of Elastomer Elongation and Output for Dielectric Elastomers -- By Seiki Chiba, Mikio Waki, Shijie Zhu, Tonghuan Qu and Kazuhiro Ohyama -- 8. Compression and Recovery Functional Application for the Sportswear Fabric -- By Ramratan Guru, Rajeev Kumar Varshney and Rohit Kumar -- 9. Characterizing Stress-Strain Behavior of Materials through Nanoindentation -- By Indrani Sen and S. Sujith Kumar -- 10. Toward an Instrumented Strength Microprobe - Origins of the Oliver-Pharr Method and Continued Advancements in Nanoindentation: Part 1 -- By Bryer C. Sousa, Jennifer Hay and Danielle L. Cote -- 11. Toward an Instrumented Strength Microprobe - Origins of the Oliver-Pharr Method and Continued Advancements in Nanoindentation: Part 2 -- By Bryer C. Sousa, Jennifer Hay and Danielle L. Cote.</p> |
| Sommario/riassunto | Elasticity is the ability of a material body to return to its original shape |

and size after the removal of a deforming force. The performance of materials can be defined according to their physical characteristics: stiffness, strength, hardness, ductility, and toughness. The elasticity of materials can be predicted by computational simulations and/or measured in laboratory experiments. This book is divided into two sections: "Simulations and Modeling" and "Characterization". In particular, seven relevant topics and their applications are considered: theory, simulation, characterization, composites, single crystals, nanoindentation, and dielectric elastomers. Examples are provided of the elasticity of materials including composites, single crystals, auxetics, and dielectric elastomers. The book provides important practical skills and will be useful for postgraduate and higher-level science and engineering students.
