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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Classification of 1D Structures -- Symmetry of Monoperiodic Systems -- LCAO Methods for Simulations on Electronic and Dynamic Properties of 1D Structures -- Applications -- Simulations on Inorganic Single-Wall Nanotubes -- Simulations on Inorganic Multi-Wall Nanotubes and Related Nanostructures -- Simulations on Inorganic Nanoribbons and Related Nanostructures -- Simulations on Inorganic Nanowires and Related Nanostructures.
Sommario/riassunto	This book deals with the theoretical and computational simulation of

monoperiodic nanostructures for different classes of inorganic substances. These simulations are related to their synthesis and experimental studies. A theoretical formalism is developed to describe 1D nanostructures with symmetric shapes and morphologies. Three types of models are considered for this aim: (i) nanotubes (rolled from 2D nanolayers and described within the formalism of line symmetry groups); (ii) nanoribbons (obtained from 2D nanolayers by their cutting along the chosen direction of translation); (iii) nanowires (obtained from 3D lattice by its sectioning along the crystalline planes parallel to the chosen direction of translation). Quantum chemistry ab-initio methods applied for LCAO calculations on electronic and vibrational properties of 1D nanostructures are thoroughly described. Understanding of theoretical aspects presented here enlarges the possibilities for synthesis of monoperiodic nanostructures with predictable morphology and better interpretation of their properties.

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