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Soggetti	Spectrum analysis Materials - Analysis Atomic structure Molecular structure Chemistry, Physical and theoretical Spectroscopy Characterization and Analytical Technique Atomic and Molecular Structure and Properties Theoretical Chemistry
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Nota di contenuto	Introduction to spectroscopy -- Computational methods in spectroscopy -- Computational modeling of nanosystems -- Photophysical properties of chromophores -- Nonlinear optical properties of molecular-like metal nanoclusters -- Luminescence properties of materials -- Structural properties of magnetic ceramic materials -- Spectroscopic studies of surfaces and interfaces -- Spectroscopic methods as a tool for catalysis -- Spectroscopy in earth sciences -- Vibrational spectroscopy of aluminosilicates -- Spectroscopic characterization of amorphous materials -- Organosilicates – structure and properties -- Structure of “black” glasses by means of spectroscopic methods -- Vibrational spectroscopy in the analysis of biological systems -- Organic materials characterization -- Spectroscopy in the analysis of artworks.

Sommario/riassunto

This book reviews various aspects of molecular spectroscopy and its application in materials science, chemistry, physics, medicine, the arts and the earth sciences. Written by an international group of recognized experts, it examines how complementary applications of diverse spectroscopic methods can be used to study the structure and properties of different materials. The chapters cover the whole spectrum of topics related to theoretical and computational methods, as well as the practical application of spectroscopic techniques to study the structure and dynamics of molecular systems, solid-state crystalline and amorphous materials, surfaces and interfaces, and biological systems. As such, the book offers an invaluable resource for all researchers and postgraduate students interested in the latest developments in the theory, experimentation, measurement and application of various advanced spectroscopic methods for the study of materials.