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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface -- Size Characterization of Nanostructured Materials -- Concept of Nanostructured Material -- Methods of Evaluation of the Size of Small Particles -- Nanostructured Lead Sulfide PbS -- Methods for the Preparation of Nanostructured Lead Sulfide: From Colloidal Solutions to Thin Films -- Crystal Structures of Nanoparticles, Nanopowders, and Nanofilms of Lead Sulfide -- Properties of Nanostructured Lead Sulfide -- Application of Nanostructured Lead Sulfide -- Nanostructured Cadmium Sulfide CdS -- Chemical Deposition of Nanostructured Cadmium Sulfide CdS -- Synthesis of CdS Nanoparticles in Glass Matrix -- Features of Crystal Structure of CdS Nanoparticles -- Optical Properties of Nanostructured CdS -- Nanostructured Silver Sulfide Ag <sub>2</sub> S -- Methods of Synthesis of Nanostructured Silver Sulfide Ag <sub>2</sub> S -- Crystal Structure of Coarse-

Crystalline and Nanostructured Ag<sub>2</sub>S Silver Sulfide -- Universal Approach to Synthesis of Silver Sulfide in the Form of Nanopowders, Quantum Dots, Core-Shell Nanoparticles, and Heteronanostructures.  
- Green Synthesis of Nanostructured Ag<sub>2</sub>S Without Hazardous Substances.- Coarse-crystalline Ag<sub>2</sub>S powders.- Deposited Ag<sub>2</sub>S Nanopowders.- Colloidal Solutions of Ag<sub>2</sub>S Quantum Dots.- Core-Shell Ag<sub>2</sub>S@C Nanoparticles.- Ag<sub>2</sub>S/Ag heteronanostructures.  
- Hydrochemical Bath Deposition: Advantages and Challenges.

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Sommario/riassunto

This book presents and analyzes the influence of small size particles of lead, cadmium and silver sulfide on the properties of nonstoichiometric semiconductors. Important nonstoichiometry aspects in nanostructures are discussed, such as the distribution of sulfur atoms in nanofilms, a non-periodic distribution of the atomic planes in nanoparticles, interdependent changes in crystal structure of nanocrystalline material. Tuning the stoichiometry allows to obtain superionic conductivity and catalytic activity under visible light. The wavelength of the luminescence of nanoparticles changes with the size of the nanoparticles. Various methods to prepare nanostructured sulfides are described. Special attention is given to the hydrochemical bath deposition as a universal method for the synthesis of sulfides as nanofilms, stable colloidal solutions, quantum dots, isolated nanoparticles with a protective shell and heteronanostructures. The effect of nanoparticle size and nonstoichiometry on the band gap, optical and thermal properties of nanostructured sulfides is also considered. The novel applications of sulfide nanoparticles in nanoelectronics, catalysis, nanobiology and nanomedicine are sketched. .

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