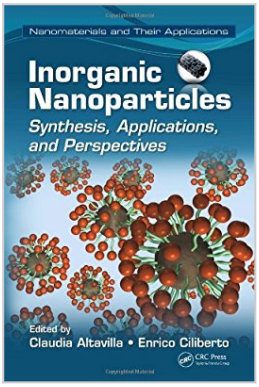

Inorganic Nanoparticles: Synthesis, Applications, and Perspectives (Nanomaterials and their Applications)

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Among the various nanomaterials, inorganic nanoparticles are extremely important in modern technologies. They can be easily and cheaply synthesized and mass produced, and for this reason, they can also be more readily integrated into applications. **Inorganic Nanoparticles: Synthesis, Applications, and Perspectives** presents an overview of these special materials and explores the myriad ways in which they are used. It addresses a wide range of topics, including:

- Application of nanoparticles in magnetic storage media
- Use of metal and oxide nanoparticles to improve performance of oxide thin films as conducting media in commercial gas and vapor sensors
- Advances in semiconductors for light-emitting devices and other areas related to the energy sector, such as solar energy and energy storage devices (fuel cells, rechargeable batteries, etc.)
- The expanding role of nanosized particles in the field of catalysis, art conservation, and biomedicine

The book’s contributors address the growing global interest in the application of inorganic nanoparticles in various technological sectors. Discussing advances in materials, device fabrication, and large-scale production?all of which are urgently required to reduce global energy demands?they cover innovations in areas such as solid-state lighting, detailing how it still offers higher efficiency but higher costs, compared to conventional lighting. They also address the impact of nanotechnology in the biomedical field, focusing on topics such as quantum dots for bioimaging, nanoparticle-based cancer therapy, drug delivery, antibacterial agents, and more.

Fills the informational gap on the wide range of applications for inorganic nanoparticles in areas including biomedicine, electronics, storage media, conservation of cultural heritage, optics, textiles, and cosmetics

Assembling work from an array of experts at the top of their respective fields, this book delivers a useful analysis of the vast scope of existing and potential applications for inorganic nanoparticles. Versatile as either a professional research resource or textbook, this effective tool elucidates fundamentals and current advances associated with design, characterization, and application development of this promising and ever-evolving device.

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Editorial Review

Review

"A quick perusal of the Table of Contents will reveal reviews of a vast range of nanoparticle applications delivered by experts in their fields … the editors emphasize applications of nanoparticles, with detailed treatments of topics … For a reader desiring a broad view of nanoparticle technology from the first decade of the 21st century, this book provides an excellent starting point."
?Douglas S. English, Wichita State University in the *Journal of the American Chemical Society*

About the Author

Dr. Claudia Altavilla graduated in chemistry (cum laude) in 2001 from the University of Catania, Italy. She received her Ph.D in chemistry in 2006 from that school with a dissertation on the synthesis and characterization of nanostructured materials assembled on inorganic substrates. She worked as a visiting scientist at the University of Florence, Italy, with Professor Dante Gatteschi, where she was involved in the magnetic characterization of nanoparticle monolayers on silicon substrates. Currently she is a research fellow in the Department of Chemical and Food Engineering, University of Salerno, Italy.

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