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Titolo	Cold Plasma in Nano-Matter Synthesis : Basic Principles and Practices / / by A. Subrahmanyam
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ISBN	9783031640414 3031640411
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (385 pages)
Disciplina	621.044
Soggetti	Plasma (ionized gases) Condensed matter Quantum dots Basic Plasma Phenomena and Gas Discharges Two-dimensional Materials Condensed Matter Physics Quantum Dots
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction to Nano Matter and Cold Plasma -- Plasma Overview and the Basics of Cold Plasma: In Material Synthesis -- Cold Plasma Diagnostics: Basics and Working Principles -- Nano Matter: Synthesis Techniques - An Overview -- Cold Plasma-Assisted Nano-matter Synthesis: Basic Principles and Techniques -- Nucleation, Thermodynamics, and Growth Kinetics of 2D Materials -- Nucleation of Nano-Matter and Nano-thermodynamics -- A Brief History and Chronology of Plasma.
Sommario/riassunto	This book describes the basic principles and techniques of cold plasma to synthesize nanomaterials, emphasizing the fundamentals. Nanotechnology has matured enough to make inroads into the industry. "Quantum size effects" is the basis of the exotic properties of nanomaterials. The shapes and the size distribution dictate the properties of the nano-matter. The demands of the synthesis technique are to produce nano-matter with uniform size, repeatable shapes, uniform size distribution, stability of the nanostructures (reaching

thermodynamic equilibrium), reproducibility of the particle sizes, and reliability of the process. These demands can be met when the synthesis technique has precise control over the process parameters. Cold plasma techniques possess all the requirements of the needs of nanomaterial synthesis. The cold plasma, an evolving field, has been established to be the most powerful tool not only for micro-electronics (both in the deposition and etching) but in many areas like health care, medicine, agriculture, food processing, etc. The book's primary emphasis is to explain the basic principles and concepts of cold plasma in nanomaterial synthesis. The target audience is undergraduate and graduate students learning nanomaterial synthesis and plasma technology. It is hoped that this book also is a good source of reference for practicing scientists and engineers involved in synthesizing nanomaterials and nanostructures in the industry.
