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Titolo	Handbook on synthesis strategies for advanced materials . Volume-I Techniques and fundamentals / / A.K. Tyagi, Raghumani S. Ningthoujam, editors
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ISBN	981-16-1807-0
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (XVII, 682 p. 257 illus., 181 illus. in color.)
Collana	Indian Institute of Metals series
Disciplina	668.42
Soggetti	Synthetic products
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Chapter 1 - Solid state synthesis: An indispensable method -- Chapter 2 - Combustion synthesis: A versatile method for functional materials -- Chapter 3 - Synthesis of inorganic nanomaterials via microwave-assisted technique -- Chapter 4 - Sonochemical synthesis of inorganic nanomaterials -- Chapter 5 - Hydrothermal synthesis of inorganic materials -- Chapter 6 - Synthesis of materials under high pressure -- Chapter 7 - Synthetic strategy for functional glass and glass ceramic materials -- Chapter 8 - Synthesis of materials by ion exchange method -- Chapter 9 - Synthesis of advanced materials by electrochemical methods -- Chapter 10 - Advanced inorganic materials through molecular precursors -- Chapter 11 - Synthesis of metal organic frameworks and covalent organic frameworks -- Chapter 12 - Lasers for materials synthesis -- Chapter 13 - Photo and radiation induced synthesis of nanomaterials -- Chapter 14 - Green chemistry approach for synthesis of materials -- Chapter 15 - Bio-inspired synthesis of functional materials.
Sommario/riassunto	This book presents state-of-the-art coverage of synthesis of advanced functional materials. Unconventional synthetic routes play an important role in the synthesis of advanced materials as many new materials are metastable and cannot be synthesized by conventional methods. This book presents various synthesis methods such as conventional solid-state method, combustion method, a range of soft chemical methods,

template synthesis, molecular precursor method, microwave synthesis, sono-chemical method and high-pressure synthesis. It provides a comprehensive overview of synthesis methods and covers a variety of materials, including ceramics, films, glass, carbon-based, and metallic materials. Many techniques for processing and surface functionalization are also discussed. Several engineering aspects of materials synthesis are also included. The contents of this book are useful for researchers and professionals working in the areas of materials and chemistry.