1.	Record Nr. Autore Titolo	UNINA9910787575203321 Manickam Sivakumar Cavitation : a novel energy-efficient technique for the generation of nanomaterials / / edited by Sivakumar Manickam, Muthupandian
	Pubbl/distr/stampa	Ashokkumar Boca Raton : , : Pan Stanford Publishing, , [2014] ©2014
	ISBN	0-429-10246-1 981-4411-54-X
	Descrizione fisica	1 online resource (445 p.)
	Disciplina	620.115
	Soggetti	Nanostructured materials Cavitation
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Description based upon print version of record.
	Nota di bibliografia	Includes bibliographical references.
	Nota di contenuto	Front Cover; Contents; Foreword; Preface; 1. Development of Multifunctional Nanomaterials by Cavitation; 2. Generation of Size, Structure, and Shape-Controlled Metal Nanoparticles Using Cavitation; 3. Sonochemical Synthesis of Noble Monometallic and Bimetallic Nanoparticles for Catalytic Applications; 4. Ultrasound-Assisted Synthesis of Metal Oxide Nanomaterials; 5. Synthesis of Nanomaterials Using Hydrodynamic Cavitation; 6. Sonoelectrochemical Synthesis of Nanomaterials; 7. Preparation of Nanomaterials Under Combined Ultrasound/Microwave Irradiation 8. Ultrasound-Assisted Preparation of Nanopolymeric and Micropolymeric Materials for the Encapsulation of Bioactive Agents9. Innovative Inorganic Nanoparticles with Antimicrobial Properties Attached to Textiles by Sonochemistry; 10. Ultrasonic Processing for Synthesis of Nanocomposite via in situ Emulsion Polymerization and Their Applications; 11. Controlled Sonochemical Fabrication of Mesoporous Surfaces and Metal Sponges; 12. Numerical Simulations of Nucleation and Aggregation of BaTiO3 Nanocrystals Under Ultrasound; 13. Ultrasonics and Sonochemistry: Some Issues and Future Perspectives

Sommario/riassunto

As nanomaterials and their end products occupy the pinnacle position of consumer markets, it becomes vital to analyze their generation processes. One of the green chemistry principles underlines the need for unusual energy sources to generate them. Utilizing the extreme energy from the collapse of cavitation bubbles, generated by either ultrasound or hydrodynamic forces, for the generation of nanomaterials is a merit to consider in this ""Green Chemical Processing Era."" A wide range of nanomaterials have been developed in the past decade using cavitation or coupling cavitation with other tech