

Contents

Part I Nano-particle Classification and Sources in Human Society

1	Nanoparticles: Definition, Classification and General Physical Properties	3
	Nicolae Strambeanu, Laurentiu Demetrovici, Dan Dragos, and Mihai Lungu	
2	Natural Sources of Nanoparticles	9
	Nicolae Strambeanu, Laurentiu Demetrovici, and Dan Dragos	
3	Anthropogenic Sources of Nanoparticles	21
	Nicolae Strambeanu, Laurentiu Demetrovici, and Dan Dragos	
4	Mechanisms of Nanoparticle Formation and Reformation in the Atmosphere	55
	Nicolae Strambeanu, Laurentiu Demetrovici, and Dan Dragos	

Part II Effects of Nanoparticles on Human Health

5	Nanopathology: The Nano-bio-interaction of Nanoparticles Inside the Human Body	71
	Antonietta M. Gatti and Stefano Montanari	
6	Nanotoxicity: Must Consider Aspect of Nanoparticle Development	87
	Ranjita Shegokar	
7	Pros and Cons on Magnetic Nanoparticles Use in Biomedicine and Biotechnologies Applications	103
	Florina M. Bojin and Virgil Paunescu	
8	Nanofluidics-Based Mass Spectrometry. Applications for Biomarker Discovery in Lysosomal Storage Diseases	137
	Mirela Sarbu and Alina D. Zamfir	

9	Multidynamic Liposomes in Nanomedicine: Technology, Biology, Applications, and Disease Targeting	167
	Shyamasree Ghosh and Waliza Ansar	
 Part III Characterization and Detection Methods for Nanoparticles		
10	Identification of Nanoparticle in Organic Matrices	213
	Antonietta M. Gatti and Stefano Montanari	
11	Gold Nanoparticles in Biosensing Analyses	221
	Subash C.B. Gopinath, Marimuthu Citartan, Thangavel Lakshmipriya, Thean-Hock Tang, and Yeng Chen	
12	Electron Magnetic Resonance (EMR) Technique and Nanoparticle Characterization	235
	Ashutosh Kumar Shukla	
13	Nanoparticle Characterization Using Nanoparticle Tracking Analysis	245
	Antoanetta Lungu, Mihai Lungu, Adrian Neculae, and Raluca Giugiulan	
 Part IV Methods for Sorting, Separating and Manipulating Nanoparticles		
14	Dielectrophoresis Used for Nanoparticle Manipulation in Microfluidic Devices	271
	Mihai Lungu, Madalin Bunoiau, and Adrian Neculae	
15	Multi-dimensional Electrophoresis: The March in Pharma Applications	303
	Ranjita Shegokar and Sampada Sawant	
16	Tailored Bio-Polysaccharide Nanomicelles for Targeted Drug Delivery	335
	Sabyasachi Maiti	

Nanoparticles' Promises and Risks
Characterization, Manipulation, and Potential Hazards
to Humanity and the Environment

Lungu, M.; Neculae, A.; Bunoiu, M.; Biris, C. (Eds.)

2015, XIV, 355 p. 135 illus., 92 illus. in color., Hardcover

ISBN: 978-3-319-11727-0