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Nota di contenuto	-- Chapter 1: Nanotechnology:an emerging field for air quality sustainability -- Chapter 2: Nanotechnology for Clean Air and Sustainable Futures -- Chapter 3: Nanomaterials in Air Pollution Remediation: A Sustainable Approach for Cleaner Air -- Chapter 4: Promising applications of different nanomaterials in air pollution remediation -- Chapter 5: Cutting-Edge Nanomaterials for Comprehensive Air Pollution Mitigation and Environmental Restoration -- Chapter 6: Application of different nanomaterials in air pollution remediation -- Chapter 7: Discovery and application of nanotechnology towards air purification in reducing airborne pathogens, canine allergies, microflora in ice-machines and application of silver nanoparticles in facial mask -- Chapter 8: Engineered carbon nanoparticles: exposure risks, respiratory toxicity, and underlying mechanisms -- Chapter 9: Characterizing nanoparticle aerosols for better air quality management -- Chapter 10: Biosensors for detecting air pollutants and hazardous gases -- Chapter 11: Nanoscale concepts

for air pollution sensors -- Chapter 12:Nano-fibrous membranes in air purification.

Sommario/riassunto

This book explores the role of nanotechnology in improving air quality and environmental sustainability. It highlights the use of advanced nanomaterials such as nano-sensors, nano-catalysts, nanomembranes, and nano-biomaterials in pollution detection, monitoring, prevention, and remediation. Air quality is a critical component of public health and ecological balance. Rapid industrialization, urban expansion, and natural calamities have significantly increased the levels of air pollutants, posing serious risks to humans and ecosystems. Traditional methods of air purification and monitoring often fall short in managing the scale and complexity of modern pollutants. Nanotechnology provides a transformative approach, offering materials and devices with unique properties such as high reactivity, sensitivity, and durability. This book presents a comprehensive overview of current nanotechnological interventions in air quality management. It discusses the scientific basis, material properties, applications, and limitations, supported by real-world case studies and experimental data. This book benefits researchers, environmental scientists, nanotechnologists, engineers, and policymakers engaged in air quality, sustainability, and environmental technology. It serves as a valuable resource for academic professionals and industry practitioners seeking to understand or apply nanotechnology in environmental monitoring and pollution control.
