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*“The essential role of nanomaterials in environment and energy issues has become more apparent in recent years. This is endorsed by the explosive growth of cutting-edge research in this area. This very timely book describes state-of-the-art studies on advanced nanomaterials of imminent importance and topics such as antireflection, fuel cells, graphene, and air pollution. Hints for technology breakthrough are abundant.”*

**Dr. Toyoki Kunitake**

**Kitakyushu Foundation for the Advancement of Industry,  
Science and Technology, Japan**

Nanoscience and nanotechnology are interdisciplinary fields that bring together physicists, chemists, materials scientists, and engineers to meet the potential future challenges that humankind will face, including the search for renewable energies for sustainable development and new technologies for carbon capture and environmental protection. Among the current subjects in nanoscience and nanotechnology, nanomaterials are developing fast and explosively and attracting a huge amount of attention. They continue to show promising potential and have found application in solar cells, fuel cells, secondary batteries, supercapacitors, air and water purification, and removal of domestic and outdoor air pollutants. To summarize the past developments and encourage future efforts, this book presents contributions from world-renowned specialists in the fields of nanomaterials, energy, and environmental science. It discusses the design and fabrication of nanostructured materials and their energy and environmental applications.



**Junhui He** is professor and head of the Functional Nanomaterials Laboratory at the Technical Institute of Physics and Chemistry, Chinese Academy of Sciences. His research interests involve functional nanomaterials, biomimetic materials, thin films, smart surfaces, and their energy and environmental applications. He has so far co-authored more than 200 peer-reviewed scientific papers and filed nearly 50 patents. He also serves as the managing editor of *International Journal of Nanoscience*.



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ISBN 978-981-4463-78-2



9 789814 463782