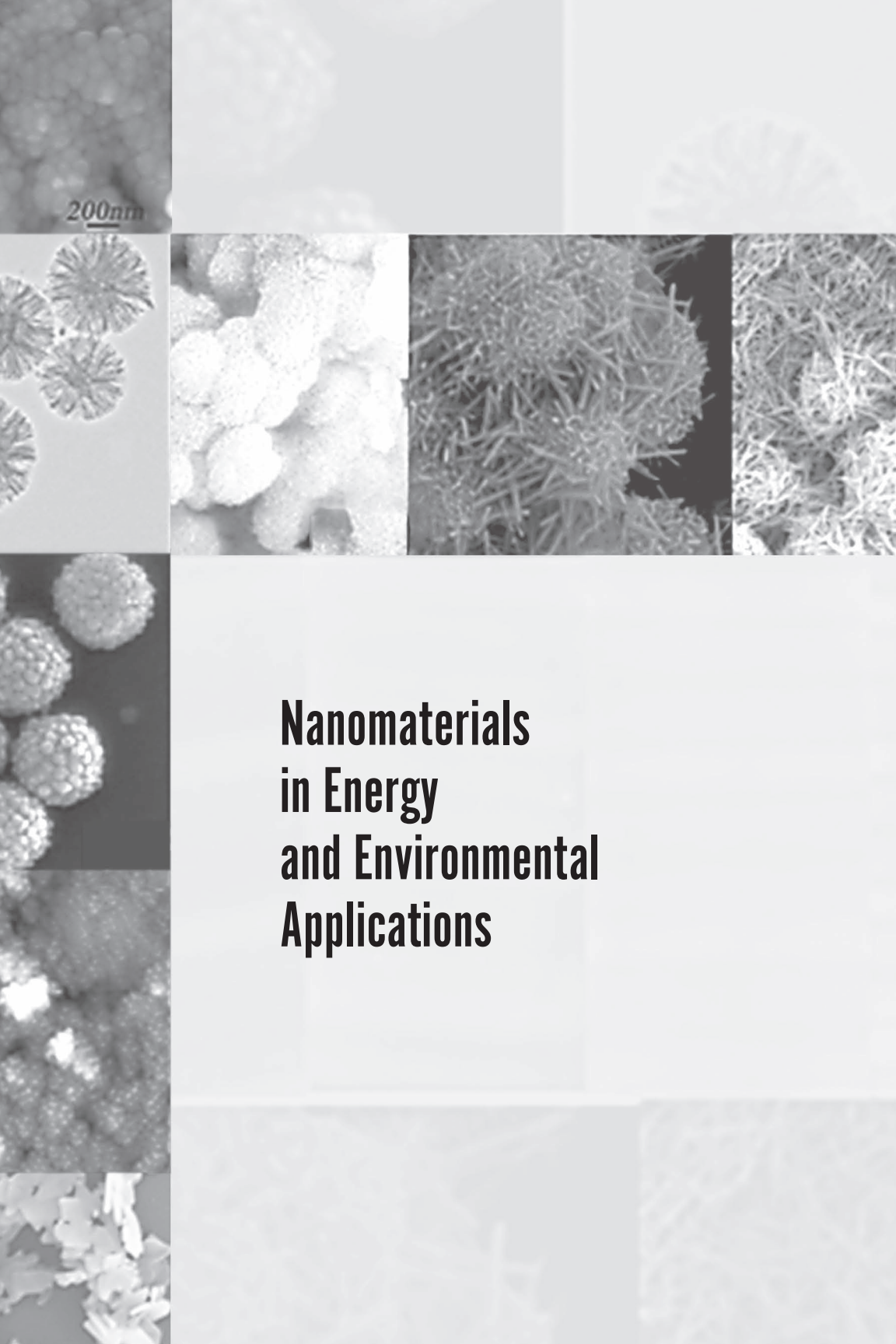


The background of the cover is a collage of various microscopic images of nanomaterials. At the top left, there's a red and orange textured surface with a '200nm' scale bar. Below it are several green images: one showing spherical structures, another showing a dense network of fibers, and a third showing a porous, sponge-like structure. To the right of the green images are two red images: one showing a dense network of fibers and another showing a porous, sponge-like structure. At the bottom left, there's a green image showing a porous, sponge-like structure. At the bottom right, there's a red image showing a dense network of fibers.

edited by **Junhui He**

Nanomaterials in Energy and Environmental Applications





200nm

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Preface

Nanoscience and nanotechnology are interdisciplinary fields that bring together physicists, chemists, materials scientists, biochemists, and engineers to meet current and potential future challenges that humankind faces, including searching 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 attract a huge amount of attention. They have recently shown emerging applications and continue to show promising potentials in technologies such as solar cells, fuel cells, secondary batteries, supercapacitors, air and water purification, and removal of both domestic and outdoor air pollutants. The application of nanomaterials has also drawn attention to their effects on human health. This book invited experts in the fields of nanomaterials, energy, and environmental science and assembled 13 reviews that discuss the design and fabrication of nanostructured materials and their energy and environmental applications.

This is the first book that summarizes the very recent efforts through nanoscience and technology towards meeting the pressing energy and environmental challenges that human beings are facing. It also points out future directions of nanomaterial development and encourages future efforts, especially by the younger generation.

Finally, I would like to take this opportunity to acknowledge all the authors who had spent their precious time in preparing their great contributions to the book. I would also like to thank Dr. Mingqing Yang, who contributed a lot to the communication with the authors and preparation and publication of the book. I am very grateful to Pan Stanford Publishing for providing me an opportunity to publish this book. I hope that the readers will find the contents both useful and enjoyable.

Junhui He

Beijing

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