

Book Review

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Nanomaterials: toxicity, health and environmental issues

Wiley-VCH, 2006,
351 pp; price £95.00/€142.50
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Nanotechnology is a rapidly expanding area and nanomaterials are finding applications in a wide range of areas including use in electronics, food, pharmaceuticals, cosmetics, bioremediation and water treatment. Over the past few years there has therefore been increasing concern over the potential health and environmental effects of nanomaterials. This book, the fifth volume in a series on 'Nanotechnologies for the Life Science', brings together a series of chapters covering the potential effects of nanomaterials on human health and the environment as well as covering applications of nanomaterials in environmental sensing and remediation. The chapters' authors are internationally recognized experts in their respective disciplines.

The chapters dealing with toxicology and human health are relatively thorough and provide an overview of a range of areas including exposure, dosimetry, epidemiology and effects on a range of end-

points (ranging from effects at the cellular level to whole-organism responses). Data are presented on metallic and metal oxide and carbon-based nanomaterials. A single chapter describes the potential impacts of nanomaterials on ecosystems, although some other chapters briefly touch upon this topic. Additional chapters cover the potential applications of nanomaterials in the treatment of water and waste and in environmental sensing. The majority of the book is well written and assumes little prior knowledge. The volume is also well indexed. The book is therefore a good reference source for someone new to this area or requiring a broader understanding of some of the implications of nanotechnology.

My major criticism of the book is that it lacks structure and is basically a series of stand-alone research articles. This results in a significant amount of repetition and redundancy (the Editor does recognize this in his preface). The quality and readability of the chapters is also highly variable; some chapters provide a very good and clear overview of a particular topic whilst others are very verbose or very specific. A number of the authors have tended to focus on their own research and in certain chapters it would

have been nice to see a wider coverage of the scientific literature. There are also some notable omissions from the book, for example, most of the 'environmental impact' sections cover positive applications of nanomaterials. The book would have benefited from a more thorough consideration of potential environmental risks, possibly by having chapters covering the detection and characterization of nanomaterials in the environment as well as the fate and transport of nanomaterials in environmental systems.

Despite the above limitations, I do believe this book is worthwhile and would recommend it to those wanting an overview of some of the issues concerning nanomaterials and health and the environment. The volume should be of interest to scientists in academia and industry as well as graduate students. Unfortunately, as this is such a rapidly developing area, the book is already quite dated.

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