

Nano for Chemists

In the current nano-hype that permeates various fields of science and technology, how can chemists contribute to the big picture? And in particular, what is Nanochemistry? What characterizes this research field? Such questions were recently addressed by **Ozin, Arsenault and Cademartiri**.

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"*Nanochemistry – a chemical approach to nanomaterials*" is the second edition, appeared in 2009, of an already very successful book published by RSC in 2005.

This book provides a very comprehensive description of various methodologies to fabricate, manipulate and characterize a large arsenal of nanomaterials.

The "nanochemistry" fabrication approaches described are markedly different from those employed in conventional chemistry, and the reader will find throughout the book only a few chemical structures followed by reactions or synthetic procedures.

Differently, the authors give a rich overview of nanofabrication techniques based on both top-down and bottom-up strategies, the latter including principles of self-assembly, wetting, capillary forces, unconventional patterning, etc.

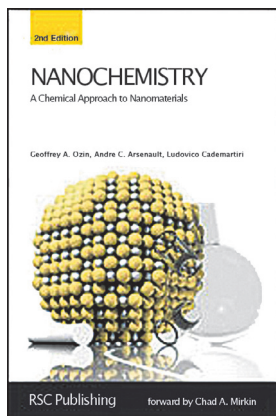
These strategies are viable for tailoring 2D and 3D nanostructured materials. The possible use of each building block for practical applications in various technologically relevant fields is often suggested and described, encompassing exploitations in micro- and opto-electronics as well as biology.

The book comprises over 800 pages and is divided into 13 chapters, each one dealing with a single class of "building blocks" or nano-fabrication technique, such as self assembled monolayers, nanocontact printing, nanorods and nanotubes, nanocrystals, photonic crystals, mesoporous materials, block copolymers and biomaterials.

A strong point of the book is the clear and lively language, which frequently exploits humour and quotes to keep the lecture enjoyable and comprehensible even for non-experts. The readability is further improved by a large use of nice pictures and fabrication schemes, often in full colour.

At the end of each chapter a collection of questions is included, to inspire creative thinking and stimulate

further thoughts. The questions' type varies greatly from chapter to chapter, and spans from more practical challenges ("think a way of synthesizing a nanocrystal inside a hollow microsphere which is free to rattle around") to more visionary problems ("think of a toy based on capillary assembly... that would keep a child amused in the bath").



Respect to the first edition, the book retains overall the same chapter structure, and has been updated with 86 new case histories taken from papers published after the first edition.

The wide variety of techniques described and the abundance of examples and applications on so many different classes of materials limits the amount of experimental and theoretical details provided on each technique; this book is well suited to be used both as a textbook in nanoscience and nanotechnology and

Geoffrey A Ozin, André C Arsenault, Ludovico Cademartiri (eds.)
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as a reference book for nano-researchers, being a very rich encyclopedia on the nanochemistry approaches, offering the chance to the reader to deepen the study on one or the other system by referring to the cited literature.

In conclusion, *Nanochemistry* is a most valuable source of information for graduate students and more expert scientists operating in various fields including physics, chemistry, biology, material science and engineering. Overall this book offers a comprehensive view of a large toolbox of nanoscale molecular building blocks, as well as many different ways to produce and exploit them in the realm of nanotechnology. We are delighted to make it a part of our own collection.

Bionanodesign

Maxim Ryadnov (Author)
RSC • 2009 • 250 pp
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