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BOOK REVIEW

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Book Review of Functional Supramolecular Architectures: For Organic Electronics and Nanotechnology, Vols. 1−2.

Functional Supramolecular Architectures: For Organic Electronics and Nanotechnology, Vols. 1−2. Edited by Paolo Samor (Université de Strasbourg and CNRS, France) and Franco Cacialli (University College London, U.K.). WILEY-VCH Verlag GmbH & Co. KGaA: Weinheim. 2011. xxxvi + 994 pp. $360. ISBN 978-3-527-32611-2.

This two-volume collection is a balanced compilation of review-style chapters written by an international cohort of authoritative experts. Even though its back cover refers to the book as a "comprehensive overview" of the titled subject, it is best described as an impressive collection of well-focused reviews highlighting many recent fundamental advances in exploiting the supramolecular approach in the context of developing novel organic electronics materials and their associated nanotechnological applications. The book features 30 chapters distributed among eight thematic parts: *Modeling and Theory*, *Supramolecular Synthetic Chemistry*, *Nanopatterning and Processing*, *Scanning Probe Microscopies*, *Electronic and Optical Properties*, *Field-Effect Transistors*, *Solar Cells*, and *LEDs/LECs*. Although the individual chapters vary considerably in their scope, length, and clarity of presentation, the editors did a commendable job in ensuring that a reasonably uniform format is maintained throughout the text so that it reads like a chapter book rather than a simple collection of independent reviews. In some chapters, one may sense a bias toward the authors' own research accomplishments in discussing the material. However, this may simply be a consequence of the narrow scope of the topic of a particular chapter.

Between the two volumes, the book contains well over 4000 references. The vast majority of chapters incorporate extensive and reasonably current references published from the mid-2000s up to 2009 (and even 2010 in a few instances). The references in 12 of the 30 chapters include not only standard bibliographic information but also titles of the cited primary literature reports. Essentially all chapters feature a wealth of good-quality illustrations, figures, and schemes, including many that are rendered in color. This aids tremendously in enhancing the clarity of the writing. One notable deficiency of this otherwise outstanding two-volume collection is its somewhat lopsided and outdated discussion of organic self-assembled monolayer films on various metal surfaces that are relevant to molecular electronics applications. Indeed, a substantial number of relatively recent important theoretical and experimental advances on this front, including, in particular, thiolate-, isocyano-, and carboxylate-terminated systems, are not considered in the book. Interestingly, the last 10 chapters of the book dealing with *FETs*, *Solar Cells*, and *LEDs/LECs* are actually the ones that are likely to capture the interest of the widest readership, including the novice reader, because of their highly interdisciplinary scope and remarkably accessible presentation style.

In the Preface, the editors state that they "would like this book to be a stimulating playground for further elaboration and development." The book appears to have all it takes to live up to this goal. Practically every chapter concludes with the sections *Outlook*, *Future Directions*, and/or *Challenges* and nicely puts the current state of the art in perspective. All in all, *Functional Supramolecular Architectures* is an excellent interdisciplinary resource for chemists, material scientists, and chemical engineers practicing in both academic and industrial R&D settings. In addition, it may be an intriguing choice as a primary text for a graduate-level special topics course dealing with functional supramolecular materials and applications thereof.

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