



Molecular Crystals and Liquid Crystals

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Book Review

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BOOK REVIEW

Conjugated Polymer and Molecular Interfaces: Science and Technology for Photonic and Optoelectronic Applications, edited by W. R. Salaneck, K. Seki, A. Kahn and J.-J. Pireaux, Marcel Dekker, Inc., 2001; ISBN 0-8247-0588-2; xvi + 866 pages; \$225.00.

One of the most exciting areas of materials chemistry is the development of technology related to what has been termed “plastic electronics.” Largely based on semiconducting conjugated polymers and oligomers, applications include organic light-emitting diodes (OLEDs), photovoltaics, injection lasers, and field-effect transistors (FETs). This excellent work, edited by and with contributions from leading authorities in the field, focuses on the metal-organic interfaces that are crucial to carrier transport and device performance.

The book consists of twenty-six chapters, contributed by more than seventy international researchers, and contains both theoretical and experimental aspects. Topics covered include functional dendritic thin films, photoelectron spectroscopy of metal-polymer and metal-oligomer interfaces, indium-tin-oxide thin films and their modification by acid treatment or silane adsorption, energy level alignment at organic-organic and organic-metal interfaces, STM-excited luminescence and spectroscopy, Schottky energy barriers and electron/hole injection processes related to OLEDs, and molecular control of electron and hole injection at organic layer interfaces.

Several chapters deal with ultraviolet photoelectron spectroscopy and determination of how the valence electronic structures of conjugated materials are influenced by interfacial metal layers. Although this topic has been previously discussed authoritatively in books and scientific literature coauthored by Salaneck, the scope of the present work is wider, and brings together all aspects, including electrical properties and charge injection, that influence optoelectronic devices. The book is also rich in example of the chemistry and electrical behavior of actual devices. Furthermore, the organic metals covered are not limited to polymers and oligomers—several chapters discuss small molecule semiconducting layers.

The quality of all of the contributions is outstanding. Furthermore, unlike some edited books that tend to be a hodge-podge of contributed

papers, *Conjugated Polymer and Molecular Interfaces* presents articles that complement each other and build a unified picture of the present state of knowledge. It will be useful to a wide audience, including researchers investigating organic-metal interfaces, scientists and engineers constructing commercial devices, and students or scientists just entering this technologically important field who desire a clear yet thorough introduction to the topic.

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