

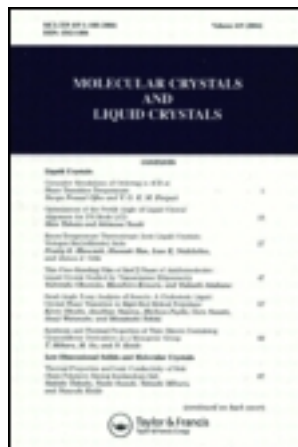
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Perspectives in Coordination Chemistry, Alan F. Williams, Carlo Floriani and André E. Merbach, Editors, Verlag Helvetica Chimica Acta, Basel. 1992. (486 pages); ISBN3-527-28487-7 (VCH, Weinheim); 1-56081-253-2 (VCH, NY); 3-906390-02-0 (VCHA); DM148; 55 pounds.

The 29th International Conference on Coordination Chemistry in Lausanne corresponded with the centenary of Alfred Werner presenting his model for coordination compounds for the Habilitation at the Polytechnikum in Zürich. The conference organizers in recognition of this auspicious occasion invited twenty-three of the speakers to submit articles depicting the current state of their research areas. The editors have appropriately used "*Perspectives*" as the first word in the title because this book provides individual views on contemporary and emerging topics that are only loosely related through the general concepts of *coordination chemistry*. The invocation was to prepare *essays* on the subjects rather than reviews, and to this end the authors responded admirably. The articles transcend the typical conference proceeding and provide personal, in depth views of diverse research areas related to *coordination chemistry*. Many of the articles project beyond the present to provide encouraging optimistic views on future challenges, opportunities and potential contributions of their respective areas. A single book could not properly represent the full scope of interdisciplines and applications associated with coordination chemistry, but this volume amply demonstrates the diversity and vitality of the field. The expected topics of structure, bonding, electronic and magnetic properties of mononuclear complexes which have a direct lineage with Werner are present, but deemphasized to make room for essays that depict the evolution toward more complex extended systems, solid state and supramolecular structures.

Current topics in the structure, bonding spectroscopy, function and reactivity of mononuclear and small cluster species are represented by chapters on the M-M delta bond (Cotton), ligand design for selective metal binding (Vögtle, Hancock), volume of activation and solvent effects (Eldik, Burger), structures in solution by neutron scattering (Enderby), structures as a guide to understanding reactivity (Bürgi), high resolution optical spectroscopy (Güdel), organometallic reactions and catalysis (Ryabov, Carmona, Bäckvall), nitrogen fixation (Shilov), iron and copper clusters in proteins (Luchinat, Fenton) and the relationship of genes with coordination compounds (Williams).

Lehn's essay on the interrelationships of Werner's coordination model with the developing field of supramolecular chemistry provides a unifying theme for a major portion of this book. Articles describing topics ranging from preorganization of the second coordination sphere (Hosseini) to high temperature superconductivity

†Unsigned book reviews are by the Book Review Editor.

(Burdett) emphasize the trend toward investigating systems that go beyond the molecular level. Almost half of this book pertains to the construction and properties of supramolecular and solid state structures. Particular emphasis is placed on the use of chemical methodologies to obtain extended systems with designed dimensions, structure and properties. Essays on systematics in assembling molecular clusters (Braunstein), designed luminescent, redox and magnetic properties from supramolecular structures (Balzani, Gatteschi), nanoclusters of metal chalcogenides (Dance), cluster and condensed halides (Corbett), and high temperature superconductivity (Burdett) will be of particular interest to the readers of this journal. This set of chapters provides illustrations of chemical concepts and methodologies originally developed for molecules being applied to control the structure and properties of extended systems and will be fascinating reading for the materials community.

"Perspectives in Coordination Chemistry" succeeds in providing a collage of snapshots of how coordination chemistry is practiced one hundred years after its inception by Werner, along with glimpses of what may yet lay ahead. The quality and interdisciplinary nature of the essays would make this book a valuable addition to virtually every chemist's book shelf and a must for chemical libraries.

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Review of **Inorganic Polymers**, J. E. Mark, H. R. Allcock and R. West, Prentice Hall, 1992; ISBN 0-13-465881, 272 pages, \$56.00.

Inorganic Polymers is one book in a series that is edited by Professor James Mark for Prentice Hall (Polymer Science and Engineering Series) to address current issues in science and technology in polymer science. The series is introduced as directed towards "high-tech" materials issues in the polymer community with a range of presentations from introductory to advanced treatments of specialized subjects. *Inorganic Polymers* is presented as an introductory text with broad and generalized coverage given in the various chapters. Chapter headings include Introduction, Characterization of Inorganic Polymers, Polyphosphazenes, Polysiloxanes and Related Polymers, Polysilanes and Related Polymers and Miscellaneous Inorganic Polymers.

This book is a very good beginning for this interesting and generally little recognized field. I was very pleased with the consistent level, primarily at an introductory level, of all of the chapters. The authors have given a wide view of the chemistry and applications of these types of polymers and have presented it in an informative manner without weighing the reader with excessive details that are of most concern to those actively working in this field. The goal of Professors Mark, Allcock and West of providing an introductory, comprehensive overview of inor-

ganic polymers is admirably achieved, such that most students will find self teaching of this material to be readily accomplished without difficulty.

I am however critical of the need to include two chapters devoted to what a polymer is and how they are characterized. Even the beginning student in polymer science, or those with some general knowledge of polymer science, will find this simplistic presentation inconsistent with the goals of this treatise, to teach about inorganic polymers. I personally would have preferred to see more information presented about specifics of these materials rather than to have such introductory material included. Secondly, I felt the presentation on polysiloxanes was not at the same general overview level as for the other polymers discussed. Indeed, I was disappointed to find so comparatively little information, given that commercially, polysiloxanes account for the major use of inorganic polymers and that polysiloxanes have been the most extensively studied of all inorganic polymers.

Given these caveats, this book is a welcomed addition to the literature and is an inviting treatment of this topic. One of my graduate students read this book and came to me excited about the widespread technological applications and rather extensive versatility of these polymers. He obviously enjoyed reading this book and found it inspiring which is one of the best recommendations one can get. I can highly recommend this book as an interesting introduction to the field of inorganic polymers for those who wish to get an overview of the field and the technological applications that have been developed and are being explored. This book should not be considered however, as either a comprehensive or exhaustive compilation of information in the field of inorganic polymers.

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Macromolecular Host-Guest Complexes: Optical, Optoelectronic, and Photorefractive Properties and Applications, Materials Research Society Symposium Proceedings, Volume 277, 1992, Materials Research Society, Pittsburgh, PA; editor, Samson A. Jenekhe; ISBN 1-55899-172-7; x + 240 pages; \$62.00.

This volume contains the proceedings of the MRS symposium "Macromolecular Host-Guest Complexes: Optical and Optoelectronic Properties and Applications" held in San Francisco April 27–28, 1992. The book consists of 27 chapters divided into four parts and author and subject indices. The four parts are titled "Organic Electrophotographic and Optical Storage Materials," "Coordination Complexes and Biomimetic Materials," "Organic Photorefractive Materials," and "Optoelectronic and Nonlinear Optical Materials." The term "macromolecular host-guest complex" is not defined. It appears to include organic (synthetic and naturally occurring) and inorganic hosts.