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COORDINATION CHEMISTRY REVIEWS

Book Reviews

Biocoordination chemistry: coordination equilibria in biologically active systems, edited by K. Burger (Ellis Horwood Series in Inorganic Chemistry, edited by J. Burgess) Ellis Horwood, New York, 1990, 349 pp. ISBN 0-13-179912-6.

This book is essential reading for anyone in the field of bio-inorganic chemistry. This volume brings together, through a series of edited chapters, an astonishing amount of useful quantitative data on bio-inorganic systems.

Following an introduction (Ch. 1), chapter II (by the editor) discusses the acid–base properties of amino acids and peptide proton binding sites. The necessary theory is presented in some considerable depth. Chapter III (Tamás Kiss) presents a wealth of data on the metal complexes of amino acids (stability constants, bonding modes, mixed ligand formation constants, etc.). Chapter IV (Imre Sóvágó) presents similar data for peptide metal complexes. Chapter V (Junzo Hirose and Yoshinori Kidani) shifts emphasis to thermodynamic and kinetic aspects of metalloenzymes and metalloproteins. This contribution reviews a great deal of data on carboxypeptidase, carbonic anhydrase, superoxide dismutase, transferrin, etc. Chapter VI (the editor and László Nagy) gives binding, stability, structural etc. data on metal complexes of the carbohydrates and sugar-type ligands. In Chapter VII (Harri Lönnberg), it is the turn of the metal complexes of nucleic acid bases, nucleosides and nucleoside monophosphates for presentation mostly of stability constants. Stability–basicity correlations and interligand interactions are also considered.

Inorganic polymers, by J.E. Mark, H.R. Allcock and R. West (Prentice Hall Advanced Reference Series, edited by J.E. Marck) Prentice Hall, Englewood Cliffs, NJ, 1992, 272 pp. ISBN 0-13-465881-7.

Introductory chapters define the nature of an inorganic polymer and provide extensive data on how such systems may be characterized (molecular weight determination, distributions, chain statistics, crystallinity, solubility and mechanical properties, etc.). Successive chapters then deal with specific

systems including polyphosphazenes, polysiloxanes, polysilanes and related polymers, and miscellaneous polymers containing sulphur, phosphorus, boron etc. The book presents a detailed overview of the subject and is a useful text for researchers in the field.

Progress in inorganic chemistry, edited by K.D. Karlin, Vol. 41, Wiley, New York, 1994, 848 pp., US$103.00. ISBN 0-471-59699-X.

In his first edited volume in this series, Kenneth Karlin has brought together an excellent group of authors. Nine chapters contain "X-ray crystallography; a fast, first resort analytical tool" (Håkon Hope), which details the practical aspects of collecting data and solving X-ray structures; the "Principles and applications of semiconductor photoelectrochemistry" (Nathan Lewis and coauthors), which is a very extensive and scholarly study of this field; "Chemical vapor deposition of metal-containing thin-film materials from organometallic chemistry" (James T. Spencer), which contains a very useful and extensive tabulation of the various species which can be deposited as thin films. Further chapters discuss the "Construction of small polynuclear complexes with trifunctional phosphine-based ligands as backbones" (Alan L. Balch), presenting a great deal of structural data; the "Chemistry of transition metal complexes containing catechol and semiquinone ligands" (Cortland G. Pierpont and Christopher W. Lange) brings up to date an earlier review by the senior author in 1981, dealing with these fascinating redox active ligands; a study of "Macrocyclic polyamine zinc(II) complexes as advanced models for zinc(II) enzymes" (Eichi Kimura); the "Chemistry of nickel-containing enzymes (Andrew F. Kolodziej), summarizing recent studies of nickel enzymes which have only recently been recognized. The final two chapters deal with the "Chemistry of peroxnitrites" (John O. Edwards and Robert C. Plumb), which explores a relatively underdeveloped area of main group chemistry, and "Metal chalkogenide cluster chemistry" (Ian Dance and Keith Fisher), with an extensive tabulation of the preparation and structures of the systems. Certainly, the high reputation of this series is maintained under the new Editorship.

Nanosystems, molecular machinery, manufacturing and computation, by K.E. Drexler, Wiley, New York, 1992. 556 pp., US$15.95. ISBN 0-471-57457-X.

The volume contains a series of chapters demonstrating how, in principle, molecular engineering can be used to design molecular-sized devices to accomplish a wide variation of tasks. It paints an exciting view of a future