reminding students of points that they had forgotten or helping them with material they had not understood. It is a text which should find an expanding market in British universities.

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Inorganic Syntheses, Volume 32

Marcetta Y. Darensbourg, (Editor in Chief)
John Wiley & Sons, New York, 1998
xxiii + 331 pages. £51.95
ISBN 0-471-24921-1

Inorganic Syntheses is a well-established series, which provides for organometallic and inorganic chemists a source book of syntheses which have been corroborated in independent laboratories. This volume is dedicated to the late Sir Geoffrey Wilkinson, Nobel Laureate, who was for many years one of the International Associates of *Inorganic Syntheses.* As the dedication rightly states, 'His monumental contributions to inorganic and organometallic chemistry, and in particular his emphasis on the importance of synthetic chemistry, will long be remembered.'

The Editor in Chief, Marcetta Darensbourg, has emphasized the importance of ligand design in coordination chemistry in this volume. Therefore, Chapter 1 describes the syntheses on a large scale of water-soluble phosphines. The water solubility of these phosphines has been induced either by the introduction of sulphonic acid groups or substituents capable of forming strong hydrogen bonds.

Chapter 2 describes the synthesis of compounds which have been developed as models for the co-ordination environments of metalloenzymes. The biomimetic ligand syntheses which are included focus specifically on models for the common metal-binding amino-acid residues histidine (imidazoles), cysteine (thiolates) and methionine (thioethers). Derivatives of the pyrazolylborates, which are very widely used in such studies, are described, and their use in the development of isolated metal sites with sterically bulky ligands is stressed in the context of small-molecule activation.

The biological theme is continued in Chapter 3; an alternative synthesis of cisplatin, which is now widely used as an anticancer chemotherapeutic agent, is described, as well as the syntheses of complexes with labile ligands, which have proved to be such effective synthons in coordination and organometallic chemistry.

Chapter 4 is devoted to the syntheses of Main-Group and transition-metal cluster compounds, and includes the description of synthetic procedures for borazine derivatives, transition-metal complexes of the lacunary heteropolytungstate $[P_2W_{17}O_{16}]^{10-}$, metal carbonyl cluster anions, (e.g. $[Os_3(CO)_{11}]^{2-}$), heterometallic cluster compounds of platinum and ruthenium, and high-nuclearity hydrido-decaruthenium clusters.

Finally, Chapter 5 describes the syntheses of Main-Group and transition-metal hydrides: six-coordinate silicon hydrides, manganese carbonyl hydrides and phosphine hydrides of iridium in oxidation states III and V are discussed.

Althogether the Editor has brought together a collection of syntheses which provide a useful starting point for new excursions into inorganic and organometallic chemistry. I am sure Geoff Wilkinson would have approved whole-heartedly.

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Microcluster Physics
Springer Series in Materials Science, Vol. 20

S. Sugano and H. Koizumi
2nd edition, Springer-Verlag, Berlin, 1998
xii + 236 pages. £49.50
ISBN 3-540-63974-8

This book is about the physics of elemental particles containing some ten to a thousand atoms, and is a second, completely revised edition of Professor Suganos earlier book on the same subject which was originally published in 1991 as the 20th volume in Springers *Materials Science Series.* That earlier edition was based on lectures given to graduate students (significantly, mainly in physics), and covered a new field that was experiencing very rapid growth. Continuing considerable interest in the area is reflected by the length of this volume (50 longer than the original) and by the similar increase in the number of papers cited (there are 253 references in this new edition). Professor Sugano originally focused his attention on particles containing some ten to a thousand atoms because that is the range within which properties change most markedly, from those of small molecules to those characteristic of fragments of bulk materials. Larger particles containing from 10^3 to 10^5 atoms, which the authors refer to as 'fine particles', have properties that differ from those of bulk materials, but the differences can usually be attributed to their greater proportion of surface atoms and to surface irregularities. It is Professor Suganos thesis that microclusters as defined here show quantum-mechanical properties, notably electronic energy levels, that depend upon their shape, like those of molecules.

An introductory chapter defines and explores the characteristics of microclusters, placing them in context between fine particles and small molecules, and noting the normal polyhedral shapes and shell periodicity of microclusters. Later chapters deal with their dynamics — whether they are more realistically regarded as like solids