Coordination Chemistry Reviews, 32 (1980) 272

Book Review

Mössbauer Spectroscopy, Part V of Studies in Physical and Theoretical Chemistry, by A. Vértes, L. Korecz and K. Burger, Elsevier Publishing Co., Amsterdam, 1979, 416 pages, price U.S. $ 73.25.

Since its discovery over 20 years ago, Mössbauer spectroscopy has become an extremely useful technique in many of the natural sciences, including solid state physics and metallurgy, inorganic and physical chemistry, geochemistry, mineralogy and biochemistry. A number of reviews and books have been published which include discussions of most of the above areas. Although much of the material in this book has been discussed at some length in previous books and reviews, this book is the first to draw particular attention to Mössbauer spectra of quick frozen solutions.

The book is in five sections: the theory of Mössbauer spectroscopy and instrumental techniques, inorganic applications of Mössbauer spectroscopy, the Mössbauer spectra of frozen solutions, biological applications, and metallurgical studies. The first three sections are over 100 pages each while the latter two comprise the last 100 pages of the book.

While there are many parts of the book which give a clear overview of the subject being treated, the book often slips into a review-type format with less than adequate interrelation of subject matter. For example, in the second section on Inorganic Applications, the variation in Fe(II) isomer shifts is sometimes attributed to π acceptor variations, and at other times to $\sigma + \pi$ variations. Similar isomer shift and quadrupole splitting data are presented in different parts of the Inorganic section, and it would be rather difficult for a non-expert to obtain a good overview of the chemical significance of either parameter. As a review, the book provides comprehensive coverage of most areas up until 1975, but unfortunately, very sparse coverage after that date. For example, T.C. Gibb's "Principles of Mössbauer Spectroscopy" published in 1976, which includes much of the same material as this book, is not referred to, and the more recent Springer-Verlag Mössbauer books are not mentioned.

The book is easy to read, has relatively few errors, is extremely well referenced (in the style of a review article) and has an excellent author index. For anyone interested in the type of information that can be obtained using Mössbauer spectra of frozen solutions, this book is important and should be readily available. For Mössbauer spectroscopists working in other areas, the price (U.S. $ 73.25) may well make it difficult to justify even to libraries.

G.M. Bancroft