

Book Reviews

NMR, NQR, EPR, and Mössbauer spectroscopy in inorganic chemistry, by R.V. Parish (Ellis Horwood Series in Inorganic Chemistry, edited by J. Burgess) Ellis Horwood, New York, 1990, 202 pp. + 3 appendices. ISBN 0-13-625518-3.

This book is organised in five chapters, the first being a highly personal view of the discipline of nuclear spectroscopy in inorganic chemistry. Each of the remaining chapters is devoted to one of the branches of nuclear spectroscopy. The author does not attempt to treat these topics in a comprehensive manner; rather he selects systems which either reflect his personal interests, or illustrate a particular principle especially well. Each chapter is illustrated with numerous figures, and contains a bibliography of suggested reading. Numerous problems are provided, some of which are quite challenging.

The second chapter, dealing with nuclear magnetic resonance, is undoubtedly the strongest in the book. The approach is multinuclear, with special emphasis on ^1H , ^{31}P , ^{19}F and ^{13}C NMR applied to phosphine, arsine and hydride complexes of platinum(II) and other heavy transition elements. The use of spin-spin coupling in correlating spectra with structure is especially well presented, and constitutes an excellent supplement to some of the older standard treatments of this subject. The role of NMR in the study of chemical exchange is only briefly treated, as is the vast domain of organometallic compounds. Examples of some of the more modern techniques such as COSY and DEPT are given.

The third chapter, dealing with nuclear quadrupole resonance, is the shortest. Tables of data and a brief outline of the theory of the NQR experiment are presented.

The fourth chapter deals with Mössbauer spectroscopy. Several applications to unusual elements such as gold are treated here.

The final chapter, dealing with ESR, contains material on hyperfine and superhyperfine coupling applied to inorganic radical species. Zero-field splitting and g -tensor anisotropy are treated in a non-mathematical and user-friendly manner.

This book is a useful addition to the library of introductory texts in the area of nuclear spectroscopic techniques, especially when supplemented by readings in the literature of both organic and inorganic spectroscopy.

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