

Book Review

Advances in Mössbauer Spectroscopy: Applications to Physics, Chemistry and Biology (Studies in Physical and Theoretical Chemistry 25). Editors B.V. Thosar, J.K. Srivastava, P.K. Iyengar and S.C. Bhargava, Elsevier Scientific, New York, 1983, ISBN-0444-421866, 924 pp., Dfl. 495.00 (approx. U.S. \$198.00) (Available from: Elsevier Science Publishers., P.O. Box 1663, Grand Central Station, New York, NY 10163.)

This large multiauthored volume was produced 25 years after the discovery of the Mössbauer effect by R.L. Mössbauer, and just over 20 years since he won the Nobel prize for this discovery. Mössbauer Spectroscopy has become an extremely useful and versatile probe in solid state areas of many of the physical and life sciences, and new uses are being discovered regularly.

After a useful introductory chapter, and one on instrumentation, this book contains fourteen chapters which summarize: firstly, the contribution of Mössbauer Spectroscopy to five types of solids (metals, biomolecules, superconductors, rare earth intermetallics and ferroelectrics); and secondly, theoretical aspects of the technique (double Mössbauer Spectroscopy, intensity and EFG tensors, crystal field effects in Fe^{2+} , uses of molecular orbital cluster theory, paramagnetic hyperfine structure, relaxation effects, spin-lattice relaxation, and S state ions in solids, and photon and acoustic perturbations). The introductory and instrumentation chapters will be useful to the student, beginner and specialist.

The choice of the topics of course reflect the bias of the editors, and the fourteen chapters emphasize theoretical aspects of topics which are mainly of interest to the solid state physicist. Unfortunately, for the inorganic chemist, there are not many sections of the book which will be of interest apart from perhaps the first two chapters. The theoretical inorganic chemist will probably be interested in the molecular orbital and biomolecule chapters; the solid state chemist will want to read the last two chapters on rare earth intermetallics, and ferroelectrics. As a result, this book will be a welcome addition to science libraries, but not to the personal library of most inorganic chemists.

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