

Book Reviews

Works intended for notice in this column should be sent direct to the Book-Review Editor (J. H. Robertson, School of Chemistry, University of Leeds, Leeds LS2 9JT, England). As far as practicable books will be reviewed in a country different from that of publication.

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Novel application of anomalous (resonance) X-ray scattering for structural characterization of disordered materials. By Y. WASEDA. Pp. vi+183. Berlin: Springer, 1984. Price DM 23.00, US \$ 8.40.

It is straightforward to obtain a composite radial distribution function for a disordered material by Fourier transformation of a diffraction pattern. To partition this function into the contributions of the different kinds of atom pairs is less easy. This book explains how anomalous scattering changes these contributions and permits them to be resolved when experiments are done at several wavelengths. It also surveys much of the recent work with this technique at synchrotron radiation sources.

Also reviewed, in less detail, is some of the basic theory of diffraction and of anomalous scattering. Techniques for measurement of anomalous scattering, EXAFS spectroscopy, pulsed-neutron time-of-flight diffraction and energy-dispersive X-ray diffraction are reviewed briefly. Appendix 4 includes 50 pages of tables and plots of f' and f'' for all elements from Li to Cf, for energies 1 to 50 keV, recalculated by the author from the cross-section curves of Cromer & Liberman.

This book is recommended as an introduction to its rather specialized main subject and as a guide to the relevant literature (up to about 1981). The more general parts may be useful as orientation for a student, but are too superficial to be of much interest to the specialist in some other application of anomalous scattering. Appendix 4 may be reason for some to keep it conveniently at hand.

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Liquid crystals and ordered fluids. Vol. 4. Edited by A. C. GRIFFIN and J. F. JOHNSON. Pp. 1157. New York: Plenum Press, 1984. Price \$135.00 (\$162.00 outside US and Canada).

This volume is a collection of the proceedings of a symposium on *Liquid Crystals and Ordered Fluids* sponsored by the Division of Colloid and Surface Chemistry and held at the national spring meeting of the American Chemical Society in Las Vegas, Nevada, USA, 29 March–1 April 1982. Volumes 1 to 3 report the proceedings of previous meetings of the same title, which were held in 1969, 1973

and 1977. The proceedings of this latest meeting are concerned mainly with thermotropic liquid crystals, though a few papers describe work on lyotropic liquid crystals. The coverage is representative of the main thrust of current liquid-crystal research, which is directed towards the design, synthesis and characterization of liquid crystals with a view to their use in electro-optic displays. This is a camera-ready copy. But it is well typed and easy to read.

Conference proceedings make compulsive scanning. One hopes and, indeed, expects to learn about 'new' developments. But in this case I find most of the research has been published elsewhere in a more complete and scholarly form. This is, of course, to be expected as the proceedings have been published some two years later than the actual conference. It is not my intention to criticize the editors; in fact, they have done an excellent job. Such delays are, however, unavoidable in view of the amount of work that goes into the publication of such a large volume. We must, therefore, question the utility of publications such as this one! At \$162.00 it is a very poor buy at best. Certainly, the price is beyond the pocket of most scientists. Moreover, the spiralling cost to institutions of maintaining a well founded library and the consequent need for selectivity in purchases makes one hesitate before recommending the librarian to purchase outdated conference proceedings. Clearly, some kind of international computer data-base library is needed for the speedy and convenient access to conference proceedings

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Surface crystallography: an introduction to low energy electron diffraction. By L. J. CLARKE. Pp. xiii + 329. Chichester: Wiley, 1985. Price £31.50.

Low energy electron diffraction (LEED) has two main applications to surface crystallography: the determination of the geometrical arrangement of atoms at well-ordered surfaces and the identification of defects (e.g. steps, anti-phase domains) at disordered ones. The first application involves extensive measurement of integrated beam intensities and intensity analysis using dynamical (multiple scattering) theory. The second application involves measurement of the angular distribution of intensity including the angular intensity profiles of LEED beams. Although the dynamical theory is again needed in principle, valuable results are obtained in this case using the much simpler kinematical (single interatomic scattering) theory. The book