

International Union of Crystallography

World Directory of Crystallographers:

Fifth Edition

The fifth Edition of this useful Directory has just been published on behalf of the International Union of Crystallography by Polycrystal Book Service, PO Box 11567, Pittsburgh, Pennsylvania 15238, USA, from whom copies may be ordered direct at a price of US \$10.00 post free. It contains short biographical data on 7641 scientists from 71 countries, arranged in alphabetical order by countries, and by individuals within the countries. The biographical data include full name and title, address, year of birth, highest degree, field of study, university and year of highest degree, present position, telephone number and major scientific interests. There is also a comprehensive name index.

The General Editor of the Directory is Dr S. C. Abrahams and the Associate Editor is Dr A. L. Bednowitz. Crystallographers have completed Data Input Forms and have submitted them to the national Sub-Editors. The Directory has been produced by a computer-controlled experimental printer from punched cards or magnetic tapes prepared by the Sub-Editors. All National Committees for Crystallography, and also all Sub-Editors for countries not represented in the Union but included in the Directory, have been given

the opportunity to compile block orders for copies at a specially reduced price. These orders had to be submitted before the Directory was printed, but many countries took this opportunity to secure low-priced copies of the Directory for the personal use of their crystallographers.

Structure Reports

Volumes 40B and 41A of *Structure Reports* have recently been published. Volume 40B, covering the literature for organic compounds for 1974, is bound in two parts (viii + 582 pages and ii + 645 pages) and costs 320 Netherlands guilders. Volume 41A, covering the literature for metals and inorganic compounds for 1975, (viii + 477 pages) costs 150 Netherlands guilders. A 47-page supplement for 1974-1975 to Section A (*Metals and Inorganic Compounds*) of the *60-Year Structure Index* is being sold with Volume 41A, and is included in the price for that volume. Additional copies of the supplement are available at a price of 10 Netherlands guilders.

Orders for these publications may be placed direct with the publisher, Bohn, Scheltema & Holkema, Emmalaan 27, Utrecht, The Netherlands, with Polycrystal Book Service, PO Box 11567, Pittsburgh, Pa. 15238, USA, or with any bookseller.

Notes and News

Proceedings of the Sagamore V Conference

The proceedings of the Sagamore V Conference on charge, spin and momentum densities, which was held in Kiljava, Finland, 16-20 August 1976, are about to be published in *Physica Scripta*. Orders for single copies should be addressed to Physica Scripta, Institute of Physics, PO Box 530, S-751 21 Uppsala, Sweden. The price is 50 Swedish Crowns. Conference participants and subscribers to *Physica Scripta* will receive copies automatically. The conference was organized with the assistance of the Commission on Charge, Spin and Momentum Densities of the International Union of Crystallography.

It is planned to hold the next conference in the series, Sagamore VI, during the period 19-25 August 1979 at Mont Tremblant, Quebec, Canada, under the chairmanship of Professor V. H. Smith, Department of Chemistry, Queen's University, Kingston, Ontario, Canada K7L 3N6. Anyone wishing to have his name added to the Sagamore mailing list, in order to receive news of this conference and other projects of the Commission on Charge, Spin and Momentum Densities, should write to Dr M. J. Cooper, Department of Physics, University of Warwick, Coventry, Warwickshire CV4 7AL, England.

Current Awareness Profile on Crystallography

A new publication entitled *Current Awareness Profile in Crystallography* is being published fortnightly by the Chemical Information Center, which is part of the Department of Chemistry of Indiana University. Each issue represents a computerized search of two consecutive issues of *Chemical*

Abstracts, using the Chemical Abstracts Condensates tapes. Marketing restrictions on the use of these tapes currently prevent sales of the profile in some countries in Europe and elsewhere. The profile excludes all references to citations from *Acta Crystallographica*, since inclusion of these citations would have increased the cost of the profile by about 40% and it was felt that most potential subscribers to the profile would scan *Acta Crystallographica* in any case. However, the profile does include citations from the *Journal of Applied Crystallography*.

For subscribers in the USA the annual subscription is US \$37.50. Further information may be obtained from the Chemical Information Center, Department of Chemistry, Room 003, Indiana University, Bloomington, Indiana 47401, USA.

Crystal Growth Award of the American Association for Crystal Growth

The establishment of a new award for 'outstanding contributions to the field of crystal growth' was announced at Boston, Massachusetts, on 21 July 1977 by the American Association for Crystal Growth (AACG), at the Fifth International Conference on Crystal Growth. The Crystal Growth Award of the AACG, supported by the Union Carbide Corporation, will consist of a certificate citing the contributions for which the Award is given, a medal and an honorarium of \$3000.

The Award, to be presented triennially at the AACG's national meetings, will be given first in 1978. It may be shared by more than one individual, and the recipient(s) will be invited to deliver a lecture during the course of the ceremony. The basic criterion for eligibility is outstanding contribu-

tions to the field of crystal growth, through technical achievements, publications and presentations, and their impact on science and technology in crystal growth worldwide. Those selected need not be citizens of the United States. Nominations,

together with concise supporting documentation, should be forwarded by 1 November 1977 to Dr E. A. Giess, AACG Awards Committee, IBM, T. J. Watson Research Center, Yorktown Heights, NY 10598, USA.

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.

Mössbauer effect methodology. Vol. 10. Edited by I. J. GRUVERMAN and C. W. SEIDEL. Pp. ix+354. New York: Plenum, 1976. Price US\$39.00.

The Mössbauer effect has become established as a useful tool for probing the solid state. This book, a collection of papers presented at a meeting held annually to discuss applications of the technique, shows that it is especially valuable when more conventional methods of study are difficult to apply. It contains papers in two main areas: catalysis and biological molecules. The change in chemical state of a surface Mössbauer atom (^{57}Fe , ^{119}Sn or ^{99}Ru) and sometimes in particle size can be monitored during a catalytic reaction, and this may have commercial use. In iron proteins the ligand-field levels of the iron atoms may be deduced from measurements of electric quadrupole and magnetic hyperfine interactions of ^{57}Fe and can give structural information. In both of these applications a small proportion of the Mössbauer isotopes can be detected and measured in the presence of a larger number of non-resonant atoms. The remaining papers give a good impression of current varied activity in physics and chemistry research in which Mössbauer spectroscopy is being used.

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Méthodes physiques d'étude des minéraux et des matériaux solides. By J.-P. EBERHART. Pp. xiii+507, Figs. 200, Tables 44. Paris: Doin, 1976. Price 580 FF.

Crystallographers tend to be very compartmentalized individuals. X-ray specialists are ignorant of electron diffraction, while electron microscopists know little about X-rays. It is therefore a pleasure to find a book about all the principal analytical methods based on the interaction of X-ray beams, electron beams and to a lesser extent neutron beams, with crystalline solids.

The first part (100 pp.) deals theoretically with the different radiations and with the nature of their interaction with atoms. The reviewer was surprised at the choice of some of the symbols used (e.g. f instead of ρ for electron density, \bar{q} instead of P for Patterson density and R instead of s for the reciprocal-lattice vector). The author was evidently faced with the difficulty that different conventions are used in X-ray, electron and neutron diffraction. In a second edition a glossary of symbols would be very useful.

Part two (50 pp.) deals with the production and measurement of radiation. The various counter methods of X-ray detection are described in more detail than is found in most

textbooks and the reader is better able to compare the merits of the different detectors.

Part three (210 pp.) covers analytical applications of diffraction. In the chapters on X-ray diffraction the Laue, oscillation, Weissenberg and powder methods are discussed in detail. The section on powder diffraction is particularly extensive and treats identification and quantitative analysis of mixtures, lattice-parameter determination, grain-size measurement and preferred orientation. Single-crystal methods discussed include crystal orientation with Laue photographs, lattice-parameter and space-group determination and there is an introduction to structure determination. There is some confusion in the definition of the structure factor. On p. 241 $F(hkl)$ includes the polarization factor but on the next page $F(hkl)$ the coefficient in the Fourier series for electron density is defined as $F_m(hkl)/\sqrt{LP}$ where $F_m(hkl)$ is called the measured structure factor.

Electron diffraction and microscopy are treated together since a knowledge of scattering theory is essential for the interpretation of electron micrographs of crystals. High-resolution electron microscopy is full of pitfalls for the inexperienced who may describe as structural features what in fact are principally diffraction effects. Micrography of defects in crystals and low-energy electron diffraction (LEED) are also discussed.

The last part (100 pp.) treats spectroscopic methods of analysis. These are X-ray fluorescence, electron probe microanalysis, scanning electron microscopy, photoelectron spectroscopy (ESCA), Auger electron spectroscopy and secondary ion emission spectroscopy.

As far as the reviewer – an X-ray crystallographer – can judge, the specialist will learn little new about his own field although the theory is always explained clearly and rigorously and there is a wealth of technical hints. Eberhart's purpose appears to be to explain the different methods to specialists in other fields and in this he has succeeded admirably. At the end of each chapter is a book list; there is also a bibliography of original work (up to 1974). The clarity is enhanced by the excellent two-colour diagrams which are probably responsible for the very high price. English-speaking readers with school-standard French will find the linguistic effort well worth while.

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X-ray diffraction topography. By B. K. TANNER. Pp. xiv+174, Figs. 80, Tables 6. Oxford: Pergamon Press, 1976. Price \$12.50, £6.25.

The book *X-ray diffraction topography* is written, as the author himself says, as an elementary treatment of X-ray topography comprehensible to the non-specialist.