International Union of Crystallography

Commission on Crystallographic Apparatus

Microdensitometer intensity project

Microdensitometers are now widely used to measure the intensities of reflexions from single crystals, particularly where large unit cells are concerned. The Commission on Crystallographic Apparatus has decided to make a study of the performance of existing instruments, similar to that undertaken some years ago for single-crystal diffractometers.

All crystallographers using microdensitometers are cordially invited to take part in the project. Though the main aim is to evaluate automatic instruments, laboratories with manual densitometers can also participate.

Two sets of screened non-integrated precession films containing reflexions with two different spot sizes will be distributed. Each set contains two films with different exposure times. Thus each participant will have to measure four films. The film sets will be circulated as long as they – after inspection – are considered to be undamaged. A standard scale exposed on a film of the same batch will be provided.

The results of the measurements shall be delivered on cards in the form of centred x, y coordinates, indices, integrated intensities and if possible, estimated intensity errors. In addition scaled intensities from the films with different exposure times should be given.

Crystallographers interested in taking part in the project, should contact the following Commission member: Professor Sixten Abrahamsson, Department of Structural Chemistry, Faculty of Medicine, University of Göteborg, P. O. Box, S-400 33 Göteborg 33, Sweden.

Notes and News

Announcements and other items of crystallographic interest will be published under this heading at the discretion of the Editorial Board. The notes (in duplicate) should be sent to the Executive Secretary of the International Union of Crystallography (J. N. King, International Union of Crystallography, 13 White Friars, Chester CH1 1NZ, England).

Anomalous Scattering

Errata

A list of corrections to errors noted in *Anomalous Scattering* (1975), edited by S. Ramaseshan and S. C. Abrahams and published for the International Union of Crystallography by Munksgaard, Copenhagen has been compiled. As one of the corrections is substantial, readers already possessing a copy are advised to write requesting a list of the errata. Copies are available from Munksgaard International Publishers Ltd., 35 Nørre Søgade, DK-1370 Copenhagen K, Denmark or Polycrystal Book Service, P. O. Box 11567, Pittsburgh, Pa. 15238, U.S.A.

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.

Structural inorganic chemistry. By A. F. WELLS. 4th ed. Pp.xxiii+1095, Figs. 538, Tables 262. Oxford Univ. Press, 1975. Price £25.00.

This book is the fourth edition of a textbook which can certainly be considered the best and most comprehensive among those devoted to structural aspects of inorganic chemistry. With respect to the previous (third) edition, this new one is nearly completely rewritten and is expanded in the description of the geometrical and topological aspects of inorganic crystal structures. This expansion has been achieved not so much by increasing the number of the pages (increase of 40) or by modifying the size and compactness of the printing, which has been left practically the same, but by changing the page size so that there is now room for putting bibliographic references and many figures in the lateral margin, and above all by removing or drastically reducing those chapters and paragraphs more devoted to theoretical aspects or to the chemical-physical properties of compounds. Thus chapters treating the fundamentals of valency theory and experimental methods of structural chemistry, and several paragraphs on physical and chemical properties of elements and compounds have been removed.

The reviewer agrees with these changes because, while it is easy to find more developed and complete treatments of the removed topics in many textbooks on general and physical chemistry, it is not so easy to find other textbooks giving such well developed and exhaustive treatments on geometrical aspects of inorganic crystal structures. These aspects are considered with the same elegant and rational treatment developed by the author in several original papers, and the treatment is much deeper and more extended than that required for a student textbook.

As with the third edition, this one is divided into two parts. Part I is a general introduction having the aim of giving the basis for understanding the principles ruling the structure of inorganic crystals. Part II is a systematic and comparative description of the crystal structures of the main elements and compounds.

Part I, which consists of about a quarter of the whole book (255 pages), begins with an introductory chapter on the solid state where the meaning of the structural formulae for inorganic compounds, the geometrical and topological limitations and the general classification of crystals are considered. The following five chapters deal with symmetry, polyhedra and nets, packing of spheres, tetrahedral and

octahedral structures, principal types of inorganic structures. This part ends with a chapter on bonds in molecules and crystals, where the types of structures are correlated with the nature of the bonds.

The 22 chapters of Part II, which constitutes the remaining three quarters of the book (774 pages), deal with descriptions of the crystal structures of the principal elements and inorganic compounds classified according to the nature of the elements and the types of compound. This second part has been substantially updated which makes the book very useful as a reference book particularly concerning general views on the structural properties of classes of inorganic compounds.

In the preface the author explains the purposes and organization of the work, gives a list of contents in the form of titles of chapters and sections, a table of abbreviations for the literature quotations, a formula index and a subject index. Compared with the previous edition, the formula index is increased by about 65% as a consequence of the increased number of compounds considered in the second part. On the other hand the subject index is much less comprehensive being contracted to about one half, and this contraction is perhaps objectionable as it reduces the usefulness of this index. Also the use of non-standard abbreviations for literature quotations is not, in the opinion of the reviewer, an improvement, firstly because it is not justified by space considerations and secondly because new conventions are being added to the jungle of those which already make everyday life so complicated.

The reviewer is frankly happy about this fourth edition as he was about the previous ones, and hopes that it will succeed in fulfilling the purposes the author states in the preface, *i.e.* to make 'the results of structural studies of crystals available in a form intelligible to chemists' and 'to provide teachers of chemistry with facts and ideas which can be incorporated into their teaching'. The importance of structural aspects in inorganic chemistry (and in organic chemistry too) is increasing, and the idea that no sound treatment of the chemical properties of compounds can be made without a clear knowledge of their structures, is widely accepted by researchers and teachers even if sometimes inadequate emphasis is put on these aspects, particularly in teaching. Indeed it is true that in the present teaching of inorganic chemistry the solid state is not developed in most cases as deeply as it should be, but it is also true that when this is done at the right level, the views developed by Professor Wells in his book can be remarkably influential.

The reviewer is pleased to have this book on his shelf both for his research and his teaching activity and he highly recommends it to all researchers, teachers and students who are interested in inorganic chemistry.

M. NARDELLI

Istituto di Chimica Generale e Inorganica,
Università degli Studi di Parma,
Via M. D'Azeglio, 85,
43100 *Parma*
Italy

Structure–property relations. Vol. 2. By R. E. NEWNHAM. Pp. ix + 234, Figs. 92, Tables 26. Berlin: Springer-Verlag, 1975. Price (cloth) DM 72 (*ca* U.S. $ 31.00).

Many ideas are packed into this 234 page review of crystal chemistry and materials science. In addition to conventional solid state topics, several recent effects and applications are briefly described, for example semiconductor lamps, bubble memories and superionic conductors, and the properties of many complicated solids are discussed. Tables and diagrams support terse qualitative descriptions of the phenomena, and there is a sprinkling of formulae, few of which are derived. The overall effect is of a sustained essay giving a broad up-to-date insight into the diversity of solid materials, but there is insufficient detail to explain satisfactorily many of the subtle concepts involved, and the book tends to give the impression that things are much simpler than they really are. Occasional lapses also appear: for example, the units of the diffusion coefficient (a quantity never satisfactorily defined) should be cm^2/sec, not cm/sec in Fig. 26. Though the book cannot be recommended as a text for solid state courses, it could provide useful background reading to broaden the perspective of graduate students studying some particular branch of materials science and technology.

J. A. D. MATTHEW

Department of Physics
University of York
Heslington
York YO1 5DD
England

Book Received

The following book has been received by the Editor. Brief and generally uncritical notices are given of works of marginal crystallographic interest; occasionally a book of fundamental interest is included under this heading because of difficulty in finding a suitable reviewer without great delay.

Radioactivity and atomic theory. By FREDERICK SODDY. Pp. xviii + 518. London: Taylor & Francis, 1975. Price £12.00.

During the period 1904–1920 Frederick Soddy provided for the Chemical Society an annual report on the progress of the subjects of radioactivity and atomic theory.

This book begins with a comprehensive introduction which gives an overview of the subject, relating the material to the present state of knowledge. While the subject tends to be treated from the viewpoint of the chemist much of interest to physicists is to be found. The level of the material is such that it could readily be understood by students, science-based or otherwise, with a limited mathematical background.