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International Union of Crystallography

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As a result of changes in the printing of *Acta Crystallographica* and in order to keep production costs for offprints at a reasonable level it has been necessary to change the arrangements for printing offprints. Offprints will be printed exactly as the article appears in the journal. Extracts of the preceding or subsequent article will not be 'blanked out' nor will the pages of the article be rearranged for the printing of the offprint. Offprints of articles which do not commence at the top of a right-hand page in the journal will include the last part

of the preceding article, whilst offprints of articles which do not finish at the bottom of a left-hand page in the journal will include the first part of the subsequent article. These changes took effect for offprints for *Acta Crystallographica*, Section B from the September 1977 issue onwards and will also apply to Section A commencing with the January 1978 issue.

It is hoped that the termination of the expensive practice of rearranging the printed articles for the production of offprints will make it possible to continue the provision of free offprints, and that authors will understand the necessity of introducing this new format for the offprints.

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.

Lectures on solid state physics. By G. BUSCH and H. SCHADE. Pp. xv + 535, Pergamon Press, 1976. Price \$35.00, £17.50.

As the title indicates and the author's preface explains, the book presents a selection from several branches of solid-state physics based on the material of the lectures given annually over some years, by the authors, for students of physics and mathematics at the Swiss Federal Institute of Technology, Zürich.

The purpose of the authors was not to present a treatise on solid-state physics, but to provide the reader with the basic physical ideas. The book is intended to serve as a base and guide for students and teachers, as well as for professionals in the fields of solid-state physics and chemistry, electrical engineering and materials science. The authors have used elementary mathematical methods in order not to render difficult the understanding of the physical concepts, which are more important than the mathematical formalisms.

The aim seems to have been achieved successfully because the book is structured in such a way that the student can obtain a perspective in which the basic aspects of solid-state physics are at conceptual level high enough for him to go further into this field with the guarantee of being able to understand more profound treatments of the subject.

On the other hand the professionals will find an interesting reference book, where the concepts and mathematical expressions which are in normal use in their work are clearly set out. At the same time they will have the basic theoretical aspects and fundamental experimental methods to initiate work on any other branch of the wide spectrum of their own practical work. The selected bibliography at the end of each lecture will help in the study of specific problems.

The book consists of eleven lectures labelled *A* to *K*, dealing with different branches of solid-state physics, except part *A* which presents a sort of resumé on the characteristics of crystalline, amorphous and polycrystalline solids in general. Lecture *B* is dedicated to the fundamental aspects of

crystalline structure and experimental methods of X-ray diffraction. Lecture *C* deals with basic aspects of lattice dynamics and the application of the Mössbauer effect. Lecture *D* is on structural and chemical imperfection. In lectures *E* and *F*, the electron theory of metals, and electrons in a periodic potential, respectively, are considered. Lecture *G* is devoted to semiconductors and lecture *H* to contact effects: metal-semiconductor and semiconductor-semiconductor. Lecture *J* deals with transport phenomena including electrical conductivity, thermoelectric and galvanomagnetic effects and lecture *K* is on magnetism. At the end of the book problems on each lecture are given.

All the lectures have nearly the same well planned structure, starting with a short introductory part followed by an exposition of the different aspects of the problem with the mathematical formulation strictly necessary to understand them. On the other hand, an experimental basis adequate for the determination of the parameters which are important from the theoretical and practical points of view is given.

As often happens with an attempt to condense diverse subjects into a short text, the subjects receive uneven coverage. However no reasons are given for the omission of such important topics as dielectrics, ferroelectricity and superconductivity. We think that it would have been worth while to complete the book with these subjects which actually have a large field of applications. Nevertheless the book does not lose interest by these omissions and it will undoubtedly find a wide circle of readers.

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Growth of crystals. Vol. 10. Herausgegeben von N. N. SHEFTAL. S. x+200. Consultants Bureau/Plenum, 1976, Preis \$45.00.

Der vom Verlag 'Consultants Bureau - New York und London' im Jahre 1976 herausgegebene zehnte Band der bekannten Serie *Growth of Crystals* enthält die englische Übersetzung der russischen Ausgabe *Rost Kristallov* (1974). Das Ziel dieses Buches liegt, wie von N. N. Sheftal in der Einleitung betont wird, in einer zusammenfassenden Darstellung von theoretischen und vor allem experimentell-theoretischen Problemen der Kristallisation, wobei aber auch Studien mit mehr experimentellem Charakter an technisch interessanten Materialien wie z. B. CdS, Quarz, GaAs, Ge, Sb₂S₃ ausführlich abgehandelt worden sind. Gerade das Bemühen, eine enge Verbindung zwischen der Theorie und dem Experiment zu finden, charakterisiert fast alle 24 Artikel prominenter sowjetischer und bulgarischer Autoren. Ein Nachruf ist dem 1972 verstorbenen A. S. Shein gewidmet, der grosse Verdienste bei der Einführung der industriellen Produktion von piezoelektrischen Materialien in der Sowjetunion hatte. Ein abschliessender Artikel von N. N. Sheftal gibt einen interessanten Überblick über die internationale Entwicklung und Behandlung von Kristallwachstumsproblemen in den vergangenen Jahren und einen kurzen Ausblick auf die nahe Zukunft.

V. V. Voronkov diskutiert die Oberflächenstruktur eines Kosselkristalls. Wenn auch die erhaltenen Aussagen oft nur qualitativen Charakter haben können und Computersimulationsexperimente fehlen, bilden sie doch die Grundlage für das Verständnis vieler Kristallwachstumsphänomene und sollten auch jeden praktisch arbeitenden Kristallzüchter interessieren. Der von L. A. Borovinskii verfasste Artikel ist für die Züchtung von Halbleitern von besonderem Interesse, da der Einfluss von Verunreinigungen auf die Bildungsgeschwindigkeit von zweidimensionalen Keimen dargestellt wird. Die Prinzipien von Epitaxieprozessen werden am Beispiel realer Experimente von R. N. Sheftal zusammenfassend dargestellt. N. A. Pangarov diskutiert umfassend die Orientierung von Kristalliten bei der elektrolytischen Abscheidung von Metallen, wobei die Bildung von Zwillingen sehr anschaulich dargelegt wird. N. N. Sheftal selbst behandelt allgemeine Gesetzmässigkeiten der realen Kristallbildung. Von den mehr experimentell orientierten Beiträgen seien nur drei interessante Artikel von G. V. Kleshchev und Mitarbeitern über die Zusammenhänge zwischen Wachstumsbedingungen und Realstruktur von hydrothermal gezüchteten Quarzkristallen genannt. Die abgeleiteten Schlussfolgerungen zum Wachstumsmechanismus werden anhand sehr klarer photographischer Abbildungen belegt.

Alles in allem ein ausgezeichnetes Buch, das sowohl dem theoretisch als auch dem praktisch arbeitenden Kristallzüchter, aber auch jedem an der Kristallisation interessierten Leser wertvolle Anregungen und Möglichkeiten zum Nachschlagen gibt. Bei einigen Arbeiten hätte man sich allerdings eine ausführlichere Berücksichtigung der nicht-russischen Literatur und mitunter präzisere Literaturangaben gewünscht. Zur englischen Ausgabe sei noch bemerkt, dass sie von N. N. Sheftal selbst redigiert wurde.

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Dynamische Interferenztheorie. By O. BRÜMMER and H. STEPHANIK (editors). Pp. x+366, Figs. 224, Tables 13. Leipzig: Akademische Verlagsgesellschaft, 1976. Price DM 89.

The book *Dynamische Interferenztheorie* (written in German) has its origin in an Autumn School held at Stolberg (Harz), GDR, in October 1972 under the patronage of the Martin-Luther-Universität, Halle-Wittenberg. It was the goal of this School to bring together scientists and students working in the field of real structures of crystals using the methods of X-ray, electron, and neutron diffraction, having a dynamical theory of diffraction as a common base. In the lectures and discussions, agreements, differences and the limits of these methods have been shown. The large response encouraged the organizers to present the contributions with many figures, tables and references in a book containing 25 articles on X-ray diffraction, 10 on electron diffraction and 1 on neutron diffraction.