

under review gives an authoritative and readable introduction to the first of these applications and an incomplete but still useful introduction to the second. The book begins with a complete systematic account of surface crystallography and ends with a survey of other methods of investigating crystal surfaces.

The chapters on the scattering of electrons by crystals, multiple scattering calculations and comparison of theoretical and experimental results provide a clear introduction to LEED intensity analysis using dynamical theory. Here, and in a chapter on temperature effects, the presentation maintains a nice balance between an exposition of the principles involved and the less interesting but very important details of methodology such as reliability factors. Elsewhere in the book, especially in the chapter on experimental methods, the presentation is a bit uneven, so that it is not always easy to distinguish between examples and an exhaustive list. For example, methods of crystal temperature measurement are surveyed in some detail but without mention of infrared pyrometry, which is actually quite useful for LEED. It might have been better to limit this part of the text strictly to LEED experimentation and supplement it with a complete set of literature references to related topics such as temperature measurement.

In dealing with applications of kinematical theory, the author has attempted to compress into one chapter an already vast and rapidly growing subject matter. While most of the important applications are mentioned and the examples are well chosen, the book would have been improved by an expanded presentation with more examples, including in particular the analysis of complex LEED patterns such as those for gold crystal surfaces. In this context it would have been worthwhile to discuss the use of kinematical LEED in conjunction with techniques sensitive to short-range correlations - e.g. low energy ion scattering or electron energy loss spectroscopy.

The final chapter gives a useful comparison of LEED with other techniques but unfortunately one of these, X-ray diffraction using synchrotron radiation, came on the scene too late to be included. Nevertheless, readers contemplating a detailed study of the LEED structure determination method might want to consider the possibility that it will be supplanted soon by X-ray diffraction.

Despite an occasionally uneven level of presentation and a few important omissions, the book succeeds in its main objective in giving a clear and authoritative introduction to LEED.

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**X-ray crystallography.** By E. M. UYGUR. Pp. x+318. Published by METU, Ankara, Turkey, 1983 (available from the Metallurgical Engineering Department). Price US \$5.00.

This book, which is based on 'class notes developed over many years of teaching of X-ray diffraction and crystallography courses' by the author, would be better titled *Elements of X-ray diffraction*. The rather general title of *X-ray crystallography* would demand a more comprehensive coverage, which the book lacks. I would particularly like to stress the fact that there is not even a cursory treatment of the determination of crystal structure and the phase problem, which is a vital area in X-ray crystallography.

The geometry of crystals, symmetry mapping and projections are routinely discussed in the first three chapters. This is followed by a treatment of generation and properties of X-rays in Chapter 4. Chapters 5 and 6 deal with X-ray diffraction proper and the experimental techniques.

Except for the drawback mentioned earlier the sections covered have been treated with clarity with good examples and illustrations. The book should find use as a supplement to standard texts in X-ray diffraction and crystallography.

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#### Books Received

*The following books have 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.*

**Niels Bohr centennial conferences, 1985: Recent developments in quantum field theory.** Edited by J. AMBJØRN, B. J. DURHUUS and J. L. PETERSEN. Pp. viii+298. Price Dfl 105.00. **Nuclear Structure 1985.** Edited by R. BROGLIE, G. HAGEMANN and B. HERSKIND. Pp. xviii+614. Price Dfl 195.00. **Semiclassical descriptions of atomic and nuclear collisions.** Edited by J. BANG and J. DE BOER. Pp. ix+487. Price Dfl 165.00. Amsterdam: North-Holland, 1985.

**Solid state physics.** 2nd ed. By J. S. BLAKEMORE. Pp. x+506. Cambridge University Press, 1985. Price Hardcover £40.00, US \$27.95, Paperback £9.95 (not available in USA).