

International Union of Crystallography

Acta Cryst. (1979). A35, 344

Eleventh International Congress of Crystallography Communicated Abstracts Supplement to *Acta Crystallographica*

The abstracts of papers communicated to the Eleventh International Union of Crystallography, Warsaw, Poland, 3–12 August 1978, have been published as a Supplement to *Acta Crystallographica*, Section A. Defects in the binding of many copies of the Supplement have delayed its publication considerably. Although the Supplement is numbered Part S4 of Volume A34 and is dated 1 August 1978, the copies were not received from Poland by Munksgaard for distribution to subscribers until 15 January 1979. One copy of the Supplement has now been sent to every subscriber to the Union's journals, whether they subscribe to one or both journals.

The Union regrets any inconvenience caused by the delay in publication of the Supplement.

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Dimensions of Material Deposited under the Supplementary Publication Scheme

The specification of the dimensions of material for deposit, given in *Notes for Authors* [*Acta Cryst.* (1978). A34, 149], has led to some confusion. In future, the dimensions of all text and tables intended for deposit should not exceed the dimensions of the A4 International Paper Size (210 × 297 mm), although the paper size may be greater. In the case of graphical material, under exceptional circumstances illustrations of greater dimensions (up to 390 × 285 mm) may be acceptable.

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.

Acta Cryst. (1979). A35, 344–345

Topics in applied physics. Vol. 22. X-ray optics. Applications to solids. Edited by H. J. QUEISSER. Pp. xi + 227. Berlin: Springer, 1977. Price DM 76.00, US \$35.00.

This book consists, apart from an introduction by the editor, of five reviews on recent developments in the production of X-rays, on some of their uses in technology, metrology, materials science or basic physics, and on their visual detection. As a bonus, some neutron optics is also included.

The first paper, on high-brilliance X-ray sources, was written by M. Yoshimatsu and S. Kozaki, both from Rigaku Denki Company, one of the two present manufacturers of rotating-anode generators, and it deals almost exclusively with such instruments; synchrotron radiation is left for a following volume in the series. It provides a well documented, and on the whole rather clear, analysis of the physical and technological limitations of high-brilliance X-ray generators, which can also help to understand the operation of lower-brilliance demountable generators.

The second and longest paper in the book is that on X-ray lithography, by E. Spiller and R. Feder from the IBM Yorktown Heights Laboratories. In the standard technology of large-scale integrated electronics, the factor limiting integration is diffraction of the light used in the various lithographic processes involved; one of the ways of pushing back the limit is to use shorter wavelengths, hence X-rays. The authors discuss the ingredients of this developing technique, from the X-ray wavelength range to be preferred and the

corresponding sources, *via* the resists, alignment procedures and subsequent processing steps, to applications and outlooks.

Apart from its obvious interest to those working in the field of micro-electronics, this article appears valuable to crystallographers as a way of understanding the technical issues at stake in the discussions, presently carried out in several countries, on the possibility of building dedicated storage rings for the production of X-rays solely or partly for this industrial application.

The third paper, on X-ray and neutron interferometry, is by U. Bonse, one of the fathers of X-ray interferometry, and W. Graeff, one of his former students now engaged in developing neutron interferometry at the high-flux reactor of ILL in Grenoble. Although they are basically similar in their aim to optical interferometry, these techniques are rather radically different in their principle because Bragg reflection by a perfect crystal has to be used for beam splitting and recombination. They can provide valuable information on materials as well as very basic physics – non-invariance of the neutron wave function under 2π rotation, or phase shift due to gravity and the Earth's rotation, for example – and constitute an elaborate test for the dynamical theory of X-ray and neutron diffraction in perfect crystals. The paper gives a unified, but very condensed treatment of the dynamical theory for X-rays and neutrons, a detailed discussion of the instrumental possibilities and requirements, and a review of the applications.

Section topography is the subject of the fourth paper, by A. Authier. He first sets out the principles of X-ray and neutron topography, then gives a discussion of the dynamical