almost fast enough for real-time manipulations.

Documentation: The write up for *MACINPLOT*II is approximately 800 lines and can be supplied as an ASCII file or a MS Word 5.0 document.*

Availability: Copies of the program can be obtained by writing to the author. The program and documentation will be supplied on a 3.5 in double-sided double-density floppy disk formatted for the Macintosh. A nominal fee will be charged to cover the cost of the disk, or a blank disk can be sent with the request. In addition, the program has been deposited at the University of Illinois NCSA facility and can be accessed *via* standard file-transfer protocol (ftp.ncsa.uiuc.edu).

Keywords: Plotting, graphics, Macintosh.

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* The *MACINPLOT*II manual and a list of current users have been deposited with the British Library Document Supply Centre as Supplementary Publication No. SUP 55808 (21 pp.). Copies may be obtained through The Technical Editor, International Union of Crystallography, 5 Abbey Square, Chester CH1 2HU, England.

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LAYERGPD – a program to visualize the three-dimensional layer group general position diagrams.

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The crystallographic problem: The standard representation of the general positions of three-dimensional groups is a two-dimensional diagram, a parallel projection of the general positions onto a plane. For each group, only a single diagram is given. Such is the case for the space groups (*International Tables for Crystallography*, 1989) and for the layer groups (Weber, 1929; Wood, 1964; Chapuis, 1966; *International Tables for Crystallography*, 1993). A second two-dimensional perspective general position diagram for some layer groups has been given by Grell, Krause & Grell (1988). The goal in developing *LAYERGPD* was to overcome, for the layer groups, the constraint of a single parallel view of the general positions. We provide the user with options to choose the orientation and type of view, parallel or projective, of the three-dimensional general positions.

Method of solution: A PHIGS (programmer's hierarchical interactive graphics system)-based development product (*Z*-PHIGS by Weiss Software, Lübeck, Germany) was used to create the three-dimensional general position diagrams. At each position, an atom is represented by a multicolored asymmetric triangular pyramid to aid visualization of the symmetry relationships among the general positions.

Software environment: *LAYERGPD* was written in TurboPascal6.0 and is compiled. The PHIGS system necessary to view the general positions is included. There are no overlays.

Hardware environment: The program runs under MS-DOS 3.1 or higher on an IBM-compatible PC with a math coprocessor, 2 Mbytes of expanded memory and at least a VGA color monitor. As this is a graphics-intensive program, a 486/25 or better microprocessor is recommended. If stored on hard disk, the program takes up 680 kbytes of disk space.

Program specifications: The program can be run from disk or installed onto a hard drive. Installation programs are provided. The program is interactive through the use of menus. The user chooses the appropriate video chip set to use, the layer group and a single or multiple view of the general positions. The single view can be rotated independently about all three coordinate axes, zoomed and set to either a parallel or projective view.

Documentation: A 'readme' file is provided with initial instructions on running the program from disk or installing it onto and running it from a hard drive.

Availability: Copies of *LAYERGPD* can be obtained free of charge by sending a formatted 1.44 Mbyte 3.5 in disk to the second author (DBL).

Keywords: Layer group, general position diagram, three-dimensional visualization.

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New Commercial Products

Announcements of new commercial products are published by the Journal of Applied Crystallography *free of charge. The descriptions, up to 300 words or the equivalent if a figure is included, should give the price and the manufacturer's full address. Full or partial inclusion is subject to the Editor's approval and to the space available. All correspondence should be sent to the Editor, Dr A. M. Glazer, Editor* Journal of Applied Crystallography, *Clarendon Laboratory, University of Oxford, Parks Road, Oxford OX1 3PU, England.*

The International Union of Crystallography can assume no responsibility for the accuracy of the claims made. A copy of the version sent to the printer is sent to the company concerned.

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New GK 311/M All-Round Goniospectrometer for Colour Measurement of Special-Effect Paints

Surfaces with pronounced anisotropic scattering, such as metallic and pearlescent paints, aluminium oxide layers, textiles and papers with special gloss effects, display a marked dependence of the brightness and the colour hue on the illumination and observation angles. Carl Zeiss has developed the **GK 311/M all-round goniospectrometer** to measure this dependence.

The new unit measures the reflectance indicatrix, *i.e.* the spectral reflectance as a function of the illumination and observation angles at small angular intervals and with high repeatability. The main features of this measuring system are the processor-controlled measurement run including 100 different measuring geometries and the short measurement time (approx. 2 s/measuring geometry).

The GK 311/M all-round goniospectrometer

The versatile high-precision angle adjustment and the high angular resolution due to small aperture angles (repeatability of 0.01°) make the GK 311/M ideal for use as a reference unit in research and development. All angle settings are motorized and microprocessor controlled at intervals of 5°. The illumination angle covers a range of 25 to 135° from the sample plane, with an observation angle of 45 to 155°.

The light reflected back from the sample is analysed in a high-resolution dual-beam diode array spectrometer. The evaluation is performed by a PC and includes the spectral reflectance with a pixel spacing of 5 nm, tristimulus values and colour differences.

Carl Zeiss, Postfach 1380, 7082 *Oberkochen, Germany*

Crystallographers

This section is intended to be a series of short paragraphs dealing with the activities of crystallographers, such as their changes of position, promotions, assumption of significant new duties, honours, etc. Items for inclusion, subject to the approval of the Editorial Board, should be sent to the Executive Secretary, International Union of Crystallography, 5 Abbey Square, Chester CH1 2HU, England.

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Professor John William White, CMG, Professor of Physical and Theoretical Chemistry in the Australian National University, Canberra, was elected a Fellow of the Royal Society on 11 March 1993. He was distinguished for his contributions to the use of neutron-scattering methods for the study of the structure of crystals and liquids. He combined great theoretical understanding of the properties of atoms when irradiated by beams of neutrons with imaginative use and sophisticated development of the technique to obtain new understanding of the structure of molecular crystals and the structure and dynamics of adsorbed monolayers.

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Executive Secretary

It is with deep regret that the death of J. N. King is announced. Jim joined the Union as the first Executive Secretary in 1969 and gave loyal service until his untimely death on April 12. He had known about his illness for about fifteen months but had continued working with remarkable fortitude almost until the end. A full obituary will appear in *Acta Crystallographica* Section A in due course.

Book Reviews

Works intended for notice in this column should be sent direct to the Book-Review Editor (R. F. Bryan, Department of Chemistry, University of Virginia, McCormick Road, Charlottesville, Virginia 22901, USA). As far as practicable, books will be reviewed in a country different from that of publication.

J. Appl. Cryst. (1993). **26**, 499–500

Synchrotron radiation crystallography. By *Philip Coppens*, with contributions by *David Cox*, *Elias Vlieg* and *Ian K. Robinson*. Pp. x + 316. London: Academic Press, 1992. Price £45.00. ISBN 0-12-188080-X.

Crystallography in general, and X-ray crystallography in particular, have been with us for a very long time. Indeed, determination of the structures of crystals with small and medium-sized unit cells has become a widespread and almost routine technique. Why then synchrotron-radiation crystallography – and what is it? The special characteristics of synchrotron radiation are its high intensity, narrow collimation, polarization, wide spectral range and time-pulsed structure. The use of these special features in applications that either cannot be done as well, or cannot be done at all, with conventional sources, is what constitutes the relatively new subject of synchrotron-radiation crystallography. This book aims to collect together up-to-date descriptions of many of these special applications. It is not meant to be comprehensive, nor is it an introductory text. The intended audience is not specified but the book is aimed, in essence, at the research scientist with a working knowledge of crystallography who wishes to learn in depth what synchrotron radiation can contribute to conventional crystallography and how it may be used to extend the subject into new areas. It is densely packed with useful information but the presentation and the typography are clear – at least to readers with a significant background knowledge of the subject. Well chosen references to the original work are given and in my judgement the book is both very successful and timely in bringing together a coherent account of an exciting and rapidly developing subject or, more accurately, collection of subjects. In reality, this is not one book but three, each of which I will comment on in turn. The first, comprising the *Introduction* and seven chapters, is by Philip Coppens. The *Introduction* (14 pp.) outlines the reasons for choosing the topics of the book in relation to the properties of synchrotron radiation. It also includes brief descriptions of X-ray diffraction from single crystals of very small size (*e.g.* linear dimensions of 10 μm or less) and the importance of the measurement of very weak and high-order reflections. Chapter 2 (17 pp.) deals with the properties of synchrotron radiation, including insertion devices, and Chapter 3 (25 pp.) deals with optical elements of diffraction beam lines, with discussion of various kinds of monochromators and mirrors. Chapter 4 (24 pp.) is devoted to synchrotron data measurement and is a brief practical guide to incident-beam monitoring, counter dead time, polarization, different diffractometer scans and area detectors.

Chapters 5 to 7 each deal with a specific scientific application. Chapter 5 (22 pp.) is concerned with the importance of accurate data and how this is characterized, followed by discussion of the determination of experimental charge densities, where the improvements now becoming possible through the ability to measure accurately weak and high-order reflections using synchrotron radiation are illustrated by recent data. Chapter 6 (31 pp.) is about anomalous scattering; its origin, experimental determination and use – now made easily possible by the continuous nature of the synchrotron-radiation