minium sample holder similar to the platinum holder used for high temperatures. The sample is fixed to a 0·01–0·02 mm thick nickel foil (Cu $K\beta$ filter thickness) using epoxy glue. The nickel foil gives a good thermal contact with the bulk sample holder, and also serves as an attenuator for fluorescent radiation. Normally, we employ Cu $K\alpha$ radiation as it is not attenuated significantly by the beryllium windows which are mounted on the chamber to facilitate the transmission of X-rays under vacuum conditions ($\sim 5 \times 10^{-8}$ Pa).

Temperatures are measured by means of calibrated Pt and Ge resistance thermometers and a calibrated bridge. The temperature at any given time is estimated by comparing cooling and heating curves as measured by the thermometers with the traverse of the film. The diffraction pattern has a width of 5 mm on the film. We have found agreement between sample temperature and the reading of the thermometers by observing the phase transitions of KH_2PO_4 (123 K) and $TbVO_4$ (32 K). The fastest cool-down time to lowest temperature is ~75 min and when using a film speed of 15 mm h^{-1}, the precision of our temperature indication as estimated from line splitting of phase transitions is about ±10 K. The line splittings observed for the two test substances are very clear due to the good resolving power of the Guinier method.

The main purpose of this present equipment is to obtain a quick indication of low-temperature phase transitions. Detailed single-crystal investigations can then be carried out using a four-circle diffractometer attachment described separately (Henriksen, Larsen & Rasmussen, 1986).

We are indebted to Dr S. J. Jensen, Royal Dental College of Aarhus, for the loan of the Guinier–Lenné camera; to Aarhus Universitets Forskningsfond for a grant for the Displex cryostat, and to Finn Homann for constructing the auxiliary equipment for converting the Guinier–Lenné camera to a low-temperature device.

SVEND ERIK RASMUSSEN
FINN KREBS LARSEN

Department of Inorganic Chemistry
Aarhus University
DK-8000 Aarhus C
Denmark

(*Received* 17 *March* 1986;
accepted 21 *May* 1986)

References

Ihringer, J. (1982). *J. Appl. Cryst.* **15**, 1–4.
Henriksen, K., Larsen, F. K. & Rasmussen, S. E. (1986). *J. Appl. Cryst.* **19**, 390–394.
Lenné, H.-U. (1961). *Z. Kristallogr.* **116**, 190–209.
Simon, A. (1971). *J. Appl. Cryst.* **4**, 138–145.

Crystallographers

J. Appl. Cryst. (1986). **19**, 414

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 of the International Union of Crystallography (J. N. King, International Union of Crystallography, 5 Abbey Square, Chester CH1 2HU, England).

Wallace Conrad Koehler died of cancer on 1 April 1986 at the age of 65. He was a distinguished scientist in the Solid State Division of the Oak Ridge National Laboratory and served as Director of the ORNL National Center for Small Angle Scattering Research (NCSASR). He received the BS and MS degrees from the University of Chicago in 1943 and 1948 respectively, and the PhD degree from the University of Tennessee in 1953. He was awarded the degree of Docteur Honoris Causa in 1979 by the University of Grenoble. Dr M. K. Wilkinson and Dr R. M. Moon write that Koehler was a pioneer in the development and use of neutron scattering techniques; he joined the program of C. G. Shull and E. O. Wollan at ORNL in its very early stage. This pioneering work has helped to lay the foundation on which neutron scattering programs throughout the world have been built. Koehler was particularly interested in studying the magnetic properties of rare-earth materials, and he became a leading authority on this subject. In 1983 he was co-recipient (with S. Legvold of Ames Laboratory and Iowa State University) of the Frank H. Spedding rare-earth award. His recent research involved small-angle scattering techniques and, under his direction, NCSASR became a very successful user program that accommodated over 100 scientists annually. Wally Koehler was an exceptionally kind person who liked people; he quickly became a good friend of everyone who knew him. His excellent research investigations brought him into contact with scientists throughout the world, and he will be greatly missed by a large segment of the scientific community.

Brian W. Matthews of the University of Oregon has been elected to the National Academy of Sciences in recognition of his achievements in molecular biology research.

Bi-Cheng Wang, formerly with the Biocrystallography Laboratory of the VA Medical Center in Pittsburgh, has been appointed Professor of Crystallography and Biological Sciences at the University of Pittsburgh.

Professor **M. M. Woolfson**, Professor and Head of the Department of Physics at the University of York, has been awarded the Hughes medal of the Royal Society, as the creator of algorithms such as *MULTAN* and *SAYTAN*, which are used worldwide to solve the majority of reported crystal structures.

International Union of Crystallography

J. Appl. Cryst. (1986). **19**, 414

Commission on Journals Author grievance procedure

The Commission on Journals has recently instituted a formal appeals procedure in which an author who believes his paper has been unjustifiably rejected by the Co-editor of an IUCr journal may appeal initially to the Editor of that journal for a new review and, finally, to the Editor of the other journal if the author is still aggrieved by the decision.

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, Professor M. Schlenker, Editor* Journal of Applied Crystallography, *Laboratoire Louis Néel du CNRS, BP166, F-38042 Grenoble CEDEX, France.*

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.

J. Appl. Cryst. (1986). **19**, 414–415

Spectroscopy (PVS) Accessory for the Polaron PN4200 Profile Plotter

The electrolyte–semiconductor contact system employed in the **PN4200 profile plotter** has an electrochemical etching capability that permits measurement to unlimited depth and is optically transparent. This is used for etching *n*-type materials. The **photovoltage spectroscopy** (PVS) **accessory** enhances the range of measurements which can be made with the PN4200 by fully utilizing this transparent contact. The PVS accessory consists of a spectrometer, motor driven optical head, signal processing electronics and a software data collection and processing package.

The PN4200 with the PVS accessory can be used for: (1) Determination of band gap in the active region of laser diodes used in both the optic fibre communications and video/compact disc industries. (2) Aluminium profiling of laser diodes, HEMT structures and many optoelectronic devices. (3) Determination of minority carrier diffusion length.

Polaron Equipment Limited, 53–63 *Greenhill Crescent, Watford Business Park, Watford, Herts WD*1 8*QS*

J. Appl. Cryst. (1986). **19**, 415

X-ray Microanalysis Standards

Polaron Equipment announce the availability of a set of X-ray microanalysis standards for SEM and electron microprobe systems in the semiconductor industry.

These high-quality reference standards can be supplied individually or in the form of multi-element blocks to suit a wide range of different instruments. All standards are polished to a $\frac{1}{4}$ μm diamond finish, are carbon-coated to prevent charging in the electron beam and are supplied with full certification and a location map for standard identification.

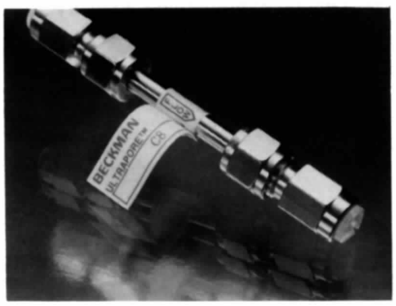
A Faraday cage, for accurate specimen current measurements, is optionally available on all mounts.

Polaron Equipment Limited, 53–63 *Greenhill Crescent, Watford Business Park, Watford, Herts WD*1 8*QS*

J. Appl. Cryst. (1986). **19**, 415

New Column for Protein/Peptide Applications

Beckman Instruments, Inc. introduce the **Ultrapore-C8 HPLC column** for fast high-resolution chromatography of proteins and peptides. Surface characteristics of the Beckman Ultrapore-C8 column are enhanced by exhaustive end-capping, thus ensuring a minimal non-specific interaction and high mass recovery. It is especially suitable for isolation and purification of biomolecules in protein structural studies.



A spherical 5 μm silica backbone provides the column with high mechanical stability over a wide range of mobile phases and flow rates. The short 75 mm column length ensures fast separations and high sample throughput. Because it is stable, good mechanical strength is compatible with a wide range of solvents, including organic modifiers and detergents. The high-resolution column is easy to clean and offers a long usable life.

Beckman Instruments, Inc., 2500 *Harbor Blvd, Fullerton, California* 92634, *USA*

Book Reviews

J. Appl. Cryst. (1986). **19**, 415–416

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.

Current topics in materials science, Vol. 11. Edited by *E. Kaldis*. Pp. ix + 453. Amsterdam: North Holland, 1984. Price US $96.25, Dfl 250.00. Available in USA/Canada from Elsevier Science Publishers, 52 Vanderbilt Ave, New York, NY 10017, USA.

Four reviews are contained in this book. Chapters 1 and 2 treat garnets, chapter 3 iron borate, and the fourth chapter lanthanum hexaboride.

Chapter 1 by P. Görnert & F. Voigt is entitled *High temperature solution growth of garnets: theoretical models and experimental results.* About one third of this chapter describes concepts which are treated in most text books on physical chemistry. Several closely related aspects of solubility are treated separately although the thermodynamic approach would have allowed a more unified approach. Readers trained in classical physical chemistry will find it disturbing that the authors ascribe a relationship, first derived by van't Hoff, to Arrhenius. The 'Arrhenius equation' is connected with kinetics, not with thermodynamics. The main part of the chapter is concerned with various aspects of growth of garnet crystals. The use of induced striations is reviewed in some detail and liquid-phase epitaxy and related subjects are treated extensively. The authors have collected a large number of observations on growth of garnet crystals which are otherwise scattered over a large number of papers. Thus the review serves a useful purpose.

The second chapter, *Substrates for epitaxial garnet layers: crystal growth and quality* by D. Mateika, also treats garnet systems. Here the emphasis is on the experimental aspects of crystal growth of bulk (substrate) crystals. Apparatus developed in the Philips laboratories in Hamburg is described in detail. Persons who are interested in constructing or improving equipment for crystal growth can find much valuable information in this article. The author reviews results from a large number of experiments on various garnet systems. Our knowledge of the crystal chemistry of oxide systems is usefully expanded by the results obtained by Mateika and his colleagues. The care taken in systematically varying each parameter and measuring its influences on crystal growth could serve as an example for students and others who enter the difficult discipline of advanced crystal growth technology.

The third paper is by R. Diehl, W. Jantz, B. I. Noläng & W. Wettling and carries the title *Growth and properties of iron borate*, $FeBO_3$. Ferric borate is one of two compounds, the other being FeF_3, which are both magnetically ordered above 300 K and also transparent in parts of the visible spectrum. Such crystals open up new areas for magneto-optical research. The chapter begins with a detailed review of the crystal structure and of other crystallographic properties of $FeBO_3$. Next, a number of phase diagrams of interest for crystal growth are discussed, followed by a thorough discussion of the possibilities of preparing large single crystals of $FeBO_3$ by vapour transport methods. The morphology of a number of crystals is described. About half of the chapter is devoted to a description of the magnetic properties of the compound. Spin waves, elastic and magnetoelastic properties are treated as well as magneto-optical and several other properties. One might expect that this interesting compound would have found technical applications. The authors state, however, that to their knowledge $FeBO_3$ has not yet been used in a working technical device.

Another compound of potential usefulness is described in chapter 4 by M. M. Korsukova & V. N. Gurin who write on *Single crystals of lanthanum hexaboride: preparation, properties and applications.* Lanthanum hexaboride and rare-earth hexaborides in general have remarkably low work functions and high thermal and electrical conductivities. Such compounds should be eminently well suited