were in their infancy. They were subsequently joined by Mike Elder and together, with their high standards of accuracy, reliability and dedication to the service of the scientific community, provided the UK Interactive Chemical Databank service which now seems to be indispensable. Pella's service to the protein crystallography community was greatly appreciated and especially with respect to the Collaborative Computing Project in protein crystallography (CCP4) and its organisation.

The contribution of Pella Machin and Mike Elder was vital to the development of new X-ray diffraction methods utilising the Synchrotron Radiation Source at Daresbury. Their experience and expertise in processing Weissenberg and protein oscillation film data was readily applied to the development of processing programs for synchrotron radiation Laue diffraction films from protein and small-molecule crystals.

As well as these academic achievements, Pella was an extremely good organiser and this was most evident at the series of Daresbury Laboratory Study Weekends for CCP4, which she co-organised. Pella was a delightful person to collaborate with. She is and will be missed.

Professor **Donald T. J. Hurle**, of the Royal Signals and Radar Establishment, Malvern, England, will receive the International Crystal Growth Award, sponsored by the American Association of Crystal Growth, at the Seventh American Conference on Crystal Growth in Monterey, CA, on 15 July 1987. The award is presented triennially for 'outstanding contributions to the field of crystal growth'. It consists of a framed citation, a commemorative medal (generously contributed by the Union Carbide Corp.), and an honorarium of $3000. Previous recipients of this award are Professor Sir Charles Frank (University of Bristol, UK), Dr Robert A. Laudise (AT&T Bell Laboratories, USA) and Professor Bruce Chalmers (Harvard University, USA).

This International Award gives recognition to Professor Hurle's many contributions to the theory and practice of crystal growth of electronic materials. In particular, as emphasized in the citation, 'he possesses the rare talent to combine major theoretical insights with the ability to test his discoveries experimentally and to see their impact on crystal growth technology'. For example, his basic calculations of fluid convection in crystal growing systems have been experimentally verified on earth and on space missions, and they have also led to automatic control during Czochralski growth.

Professor Hurle has been with RSRE, then called the Royal Radar Establishment, since 1959. While there, he obtained a DSc in 1972 from the University of Southampton, and in 1985 he became a Deputy Chief Scientific Officer at RSRE. He has recently been appointed visiting Professor of Physics and Mathematics to the University of Bristol. His dedication to the organization of international conferences is boundless, and, as Editor of the *Journal of Crystal Growth*, he has helped propagate our ideas, methods, and results.

At the same time, in Monterey, the AACG Young Author Award will be presented to Drs **Thomas F. Kuech** and **Bernard S. Meyerson**, both of the IBM T. J. Watson Research Center in Yorktown Heights, NY. This award is presented 'for significant contributions to the field of crystal growth'. It consists of a framed citation and an honorarium of $1000. Specifically, Drs Kuech and Meyerson will be recognized for advances in epitaxial techniques used for the production of III–V compound semiconductor and of silicon thin films. Dr Kuech obtained his PhD from the California Institute of Technology in 1981. He joined IBM that year, and he is currently the manager of the III–V Epitaxy Group. Dr Meyerson obtained his PhD from the City University of New York in 1981. He also joined IBM that year, and he is currently the manager of the Electronic Materials Group.

Professor **Otto Kratky**, Graz, Austria, has been awarded the 1987 Gregori Aminoff gold medal and prize for his development of small-angle methods for X-ray studies of the structure of macromolecules. This, the 8th such award, was presented to Professor Kratky at the Royal Swedish Academy of Sciences meeting on May 26. Previous recipients of the award are Professor P. P. Ewald (1979), Sir Charles Frank (1981), Professors C. Hägg (1982), J. M. Robertson (1983), D. Harker (1984), A. Guinier (1985) and E. F. Bertaut (1986).

Professor **Ingvar Lindqvist**, Professor of Inorganic and Physical Chemistry at the Swedish University of Agricultural Sciences, Uppsala, has been elected President of the Royal Swedish Academy of Sciences.

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, BP*166, *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.

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VC6800 Vacuum System for Ohmic and Schottky Contacts

The Polaron Division of Bio-Rad Laboratories announce the introduction of a range of **vacuum evaporators** for the deposition of ohmic and Schottky contacts in QA and R&D applications.

Developed from the already successful E6000 range the **Polaron VC6800 vacuum evaporators** are available fitted with either a 650 litre/second diffusion pump with cold trap or a 330 litre/second turbo pump. Both systems provide a rapidly obtained working vacuum in the 10^{-6} millibar range.

VC6800 vacuum system.

Evaporation is facilitated with a three-source resistive gun assembly or a multiple hearth electrostatic deflection electron-beam source. Laser-cut high-purity alumina masks provide an easy and effective and well defined method of contact positioning. A substrate heater capable of reaching a temperature of 750°C is fitted to provide diffusion of the contacts.

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

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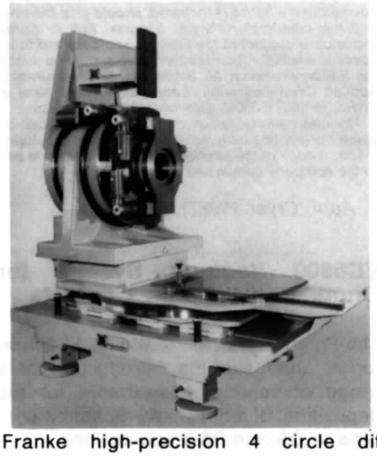
Franke High-Precision 4-Circle Diffractometer



Franke high-precision 4 circle diffractometer.

The instrument shown in the figure was recently installed at the National Synchrotron Light Source (NSLS) at Brookhaven National Laboratory (BNL), USA.

This novel **4-circle diffractometer** was developed to study the structure and phase transformations of single-crystal surfaces, interfaces and adsorbed layers. These studies are motivated by their fundamental scientific interest, as well as by their potential industrial application.

The diffractometer measures the scattering of well collimated synchrotron X-rays with greater accuracy and in a wider energy range than previously available.

The large central openings in the θ and 2θ circles allow the utilization of cryostats and ovens, permitting X-ray scattering measurements over a wide range of temperatures, from 4 to 2500K. This arrangement also allows standard ultra-high-vacuum equipment to be utilized compatibly with high-resolution X-ray scattering techniques. The ranges of angles available are θ: 0–360°, 2θ: 0–210°, φ: 0–360° and χ: $\pm$20°. The angular resolution of the instrument is 0·9 arc second.

The 4-circle diffractometer is mounted on a 'multi-purpose' base, which allows two vertical translations (one crude, one fine), one lateral translation and one $\pm$30° rotation of the instrument about its vertical axis.

An almost identical instrument was recently delivered to a leading British research institute.

Franke GmbH, Postfach 1280, *Obere Bahnstrasse* 64, *D*-7080 *Aalen, Federal Republic of Germany*

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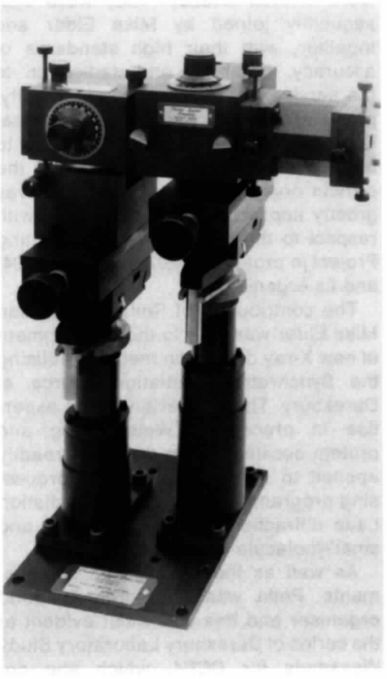
Double-Mirror Focusing System to Reduce Radiation Damage to Specimens

The **Supper Double-Mirror Focusing System** provides small intense X-ray beams with narrower angular divergence than those defined by a simple collimator. Producing photographs with higher resolution, shorter exposure times, reduced radiation damage to specimens, and lower film background, the system is ideal for protein crystallography and small-angle scattering.

The Supper Double-Mirror Focusing System focuses X-rays from a localized source such as a rotating anode or fine-focus tube at the film or detector by total reflection from the two 6·0 cm orthogonal curved mirrors. A calibrated mirror bending screw makes focusing easy and reproducible, and the system can accommodate a projected source size of up to 0·3 mm.

The Supper Double-Mirror Focusing System is priced at $5900 (US). Literature is available on request.

Charles Supper Company, Inc., Lee Supper, Marketing Director, 15 *Tech Circle, Natick, MA* 01760, *USA*



The Supper Double-Mirror Focusing System.

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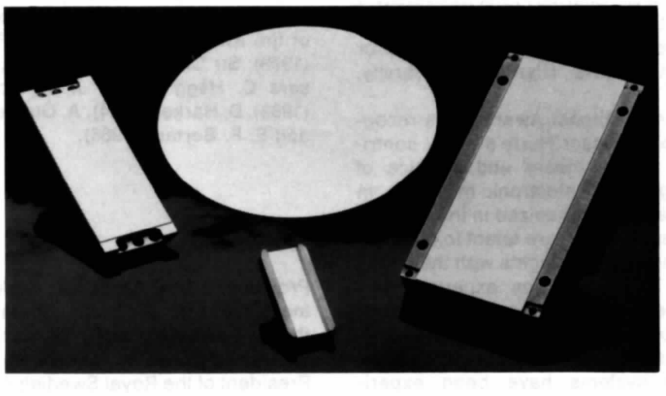
Multilayers for XRF and EPMA

OVONYX™ multilayers are replacing crystals and Langmuir–Blodgett pseudo-crystals for light-element analysis in wavelength-dispersive X-ray fluorescence (WD–XRF) and electron microprobe analysis (EPMA) spectrometers. Increased peak intensities and suppression of higher orders improves analysis of Al–B in XRF and Na–Be in EPMA. The multilayers are durable and have good thermal stability. Custom applications include monochromators for synchrotrons, normal incidence reflectors for soft X-ray lasers, and point-to-point-X-ray focusing rings.

Ovonic Synthetic Materials Co., Inc., a subsidiary of *Energy Conversion Devices, Inc.,* 1788 *Northwood, Troy, MI* 48084, *USA*



Multilayers for XRF and EPMA.

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Bio-Rad: Change of Company Name

Owing to the growing diversity of scientific equipment manufactured by the Polaron Division of Bio-Rad Laboratories we have decided to rename the company in order to reflect these changes.

The company will operate under the name of **Bio-Rad MicroScience Division** and will be responsible for the **Polaron** range of consumables and accessories for electron microscopy and semiconductor characterization equipment, the **Lasersharp** laser scanning microscope and the **Digilab** range of FTIR spectrometers.

This change heralds the start of an exciting new future for this UK instrument manufacturing division of Bio-Rad Laboratories.

Bio-Rad MicroScience Division, 53–63 Greenhill Crescent, Watford Business Park, Watford, Herts, WD1 8QS, England

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ChemProtein – New Software Package for Protein Modelling

Chemical Design, the Oxford-based supplier of molecular modelling systems, is pleased to announce **ChemProtein**, the specialist software module for protein engineering and pharmaceutical research.

The latest member of the Chem-X family is designed for quick and easy protein modelling. Proteins can be built up rapidly from a list of amino acid residues, or sources like the Brookhaven Protein Data Bank (PDB). Secondary structure information can be assigned manually, automatically, or from a data file.

Using innovative techniques developed by Chemical Design, ChemProtein can insert, delete or substitute amino acid residues, leaving key sites and secondary structures intact – vital in site-directed mutagenesis studies.

Novel graphics functionality allows protein structures to be displayed schematically using the cylinder and arrow representations commonly used in textbooks. More 'natural' representations are possible through a new backbone ribboning mode. And these special protein display styles can be mixed with traditional space-filling or 'stick' displays within a single structure.

But ChemProtein is not simply a package for rapid construction, modification and display of proteins. Equally important is the wide range of protein-specific calculations and analyses that ChemProtein makes available to the modeller.

Conformational analysis is carried out using a set of novel residue-dependent rules. Molecular mechanics and dynamics calculations may be performed using a force field designed specifically for proteins.

As part of the Chem-X family, ChemProtein is fully integrated with the rest of the Chem-X system. This means that protein modellers have all the power of Chem-X at their fingertips, allowing docking, calculation of surfaces and maps, and real-time manipulation of models. It runs on any DEC VAX computer under VMS as part of Chemical Design's Chem-X molecular modelling system.

Chemical Design, the leading supplier of molecular modelling software with more than 250 installations worldwide, also offers fully integrated modelling workstations. These can be configured for any number of users or application area, and may also incorporate the company's new MITIE minisupercomputer system.

Chemical Design Ltd, Unit 12, 7 West Way, Oxford OX2 0JB, England

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Cryostream Cooler

A new type of liquid-nitrogen cooling attachment is now being produced by Oxford Cryosystems in the United Kingdom. This device, known as **Cryostream**, has been designed according to the principle outlined by J. Cosier & A. M. Glazer [*J. Appl. Cryst.* (1986). **19**, 105–107] from the University of Oxford. The Cryostream supplies a jet of cold nitrogen gas to a crystal mounted on a diffractometer, in a camera or anywhere else that is required and is capable of achieving any temperature between 80 and 320 K with a precision of 0·1 K. Liquid nitrogen is drawn from an unsealed Dewar into the Cryostream through a 1·2 metre long flexible tube and then vapourised by a heater. The resulting nitrogen gas is warmed up to near room temperature and recooled by the incoming liquid nitrogen. This cold gas then exits through a vacuum-jacketed metal nozzle onto the specimen. In the nozzle a secondary heater and temperature sensor are used to warm the gas up to the required temperature by a temperature controller built around a computer. In this design, liquid nitrogen enters the device and cold gas exits. There is therefore no gas pressure in the Dewar and so refilling can be done simply by pouring in liquid nitrogen from time to time and with no disturbance to the temperature of the cold gas. The liquid nitrogen consumption is around 0·6 litres per hour. The flow rate of the gas is the same at any temperature and is set to provide laminar flow over the specimen. Provision is made also for passing dry air around the emerging cold gas to limit the effects of icing on the crystal.

Stoe Diffraction Systems (attention D. Brown), 21 Dorset Avenue, Norwood Green, Middlesex, UB2 4HF, England

Book Reviews

Works intended for notice in this column should be sent direct to the Book-Review Editor (R. O. Gould, Department of Chemistry, University of Edinburgh, West Mains Road, Edinburgh EH9 3JJ, Scotland) As far as practicable books will be reviewed in a country different from that of publication.

J. Appl. Cryst. (1987). **20**, 449–450

Tunable solid-state lasers II. Edited by *A. B. Budgor, L. Esterowitz* and *L. G. De Shazer.* Pp. xi + 368. Berlin: Springer Verlag, 1986. Price DM 80.00.

An accelerated rate of progress in tunable solid-state lasers and related materials, which dates from the discovery of the Alexandrite laser, has resulted in many papers dealing with the subject. Three special conferences on tunable solid-state lasers have been held. The contents of this book (Vol. 52 of the *Springer Series in Optical Sciences*) comprise the proceedings of the most recent of these meetings, held at Rippling River Resort, Zigzag, Oregon, in June 1986. More than 50 contributions, which repesent contemporary knowledge of this type of laser, are divided into ten chapters, dealing with such aspects as crystal growth, chromium and titanium tunable lasers, as well as related rare-earth lasers, colour-centre lasers, and nonlinear optics. Of particular interest are the applications of two- and three-photon spectroscopy to provide detailed information on excited-state absorption. Important new materials, *e.g.* $Cr:ScBO_3$, Ti:YAP and $Ce:Gd_2SiO_5$, are also described. Spectrophysical properties, valence stability of dopants, tuning possibilities, and the efficiency of tunable laser crystals, as well as energy transfer in Cr–Nd-doped materials, are analysed. Fundamental properties responsible for laser phenomena are discussed on the basis of relevant experimental data.

It should be noted that, for general research applications, a broadly tunable laser is important. For many applications, the ability to target specific wavelengths, or to operate anywhere within a specified frequency range, has