As a result of a suggestion from the Bragg Lecture Fund committee, the Kathleen Lonsdale Lectures have been established by the British Crystallographic Association to commemorate her achievements. These lectures are intended to educate the public in the science of crystallography and will be given at the annual meetings of the British Association. The first one will be at 2 p.m. on 27 August 1987 at the British Association meeting in Belfast, Northern Ireland, and will be open to the public. The lecture will be given by Professor David Blow and the title of the lecture is ‘Protein Crystallography Applied to Medicine and Industry’.

The Chemistry award of the Wolf prize this year will be shared by two macromolecular crystallographers: Professor Sir David Phillips, Laboratory of Molecular Biophysics, Department of Zoology, University of Oxford, England, and Professor D. M. Blow, Blackett Laboratory, Imperial College of Science and Technology, London, England. They are cited for their pioneering contributions to the understanding of enzymatic actions and other journal from 1957 onwards. A theory of Fourier images led them to the multi-slice formulation of the scattering of an electron wave in its passage through a crystal. This formulation is able to take into account many hundreds of scattered beams, and has become the basis of widely used computer programs. The theory allows the electron micrographs, obtained with modern high-resolution instruments, to be reliably and quantitatively interpreted, and used for the determination of the structures of both perfect crystals and crystals containing defects.

Professor Cowley and Dr Moodie, together and separately, have made many further contributions to theory, methods and results in electron diffraction and microscopy. Their work has often stressed a unified approach to diffraction and microscopy through physical optics. An overview of the whole field may be found in Professor Cowley’s book Diffraction Physics (1961). Amsterdam: North-Holland.

John Maxwell Cowley, born in Australia in 1923 and a graduate of Adelaide University, was formerly a Chief Research Scientist at the Division of Chemical Physics, CSIRO, Melbourne, Australia. Later he was Professor of Physics at the University of Melbourne, and since 1970 has been the Galvin Professor of Physics at Arizona State University, Tempe, USA.

Alexander Forbes Moodie, born in Scotland in 1923, graduated from St Andrews University in 1948. Since then he has been a member of CSIRO in Australia where he is a Chief Research Scientist at the Division of Chemical Physics. This Division was incorporated into the Division of Materials Science and Technology at the end of 1986.

The presentation of the Ewald Prize, which consists of a medal and a certificate for each awardee and a shared award of US $20,000, will take place at the Opening Ceremony of the XIV International Congress of Crystallography at Perth, Western Australia, on 12 August 1987. An honorary medal will also be presented to the Ewald family during the ceremony.

New Commercial Products

Radix Databox 8K

Radix Instruments announces an upgraded version of its Databox automation system for X-ray diffraction: the Databox 8K. This new unit features over 8000 channels of data memory and expanded control capabilities, including a sample changer option.

The Databox, an intelligent stepper-motor-controller integrated with a timer/scaler and data memory, fits in a two-wide NIM module, and is capable of automating both X-ray diffractometers and scanning spectrometers. The user programs the Databox via an RS232 port using a simple and self-documenting command language.

For only US $4000, the Databox is an extremely cost effective and easy-to-use solution to X-ray automation needs. The Databox has proven to be an extremely reliable laboratory tool, with many accumulated unit years of trouble-free operation in the field.

Along with the Databox, Radix also now offers XRD analysis software from Materials Data, Inc., which runs on any IBM PC or compatible. These two packages, Micro-ID and Micro-Peak, allow full data reduction and search/match on any JCPDS subfile. Both software packages, when purchased together with the Databox, cost US $4995, plus the JCPDS subfile license fee. University discounts are available.

Polaron Semiconductor Cryostats

Polaron Equipment, a division of Bio-Rad Laboratories, announce a range of liquid nitrogen and helium cryostats suitable for semiconductor materials testing.

The DL4960 liquid nitrogen cryostat uses a horizontal continuous-flow liquid
DL4960 liquid nitrogen cryostat

nitrogen design. The sample is mounted using an electrical insulator, such as mica, together with thermal conduction paste on a metal stage. A platinum resistance thermometer and heating elements are attached directly to the stage. Cooling is provided by pumping liquid nitrogen through the base of the sample stage. Electrical connections to unbonded samples are via micromanipulators employing gold probes. Four micromanipulators are provided with \( x, y, z \) movement and adjustment of probe loading.

The design incorporates a viewing window through which the sample can be illuminated. It also allows the DL4909 stereo microscope option to be employed for micromanipulator probe location.

The temperature control parameters are set on the temperature programmer unit with a feedback loop controlling the heating elements and liquid nitrogen flow. The temperature programmer can also be fully controlled via an IEEE interface.


The cryostat is of a closed-cycle design in order to minimize the running costs. It is fully compatible with all the DL4600 accessories including the Fast Pulse Interface, Transient Current Interface and Optical Excitation Source.

The Editor program enables data to be modified and prepared for reports or publications. The software allows data to be compared with other measurement sources (e.g. PN4200 Profile Plotter), smoothed, overlapping peaks to be separated and information to be entered via a graphic tablet.

The Profiler program allows DLTS data to be collected and analysed for spatial variation of the concentration of deep states; a state of the art calculation takes into account Debye spreading, Fermi-level crossing and other factors usually ignored or unrealistically approximated.

The XSECT program enables carrier cross sections of deep state to be measured directly and overcomes the severe errors encountered when this parameter is derived from the Arrhenius plot.


Light-Lead® Shielding Bricks

Reactor Experiments, Inc., announces the availability of LIGHT-LEAD® shielding bricks. These bricks were designed to replace heavy hazardous lead bricks in nuclear medicine and radiochemistry applications. LIGHT-LEAD® Bricks are ideal for shielding medical radionuclides such as Tc-99m with minimum effort. LIGHT-LEAD® weighs only 7 lbs in a \( 2 \times 4 \times 8 \) in brick. This brick is a homogeneous mixture of lead in an inert polymer. Its density is one-quarter that of solid lead.

The material meets a long-needed laboratory requirement for shielding that can be managed with safety. The excessive weight of solid lead bricks makes them both difficult and dangerous to handle. Further, the amount of shielding that they provide is not necessary for the low-energy radioisotopes currently used in nuclear medicine and other tracer applications. The cost of LIGHT-LEAD® bricks is only a fraction of that of solid lead bricks.

Additional information and a free sample of LIGHT-LEAD® are available.

Reactor Experiments, Inc., 963 Terminal Way, San Carlos, CA 94070-3278, USA


Software for the Polaron DL4600 DLTS System

Polaron Equipment, a Division of Bio-Rad Laboratories, have recently developed some new software packages for analysing Deep level transient spectrometer (DLTS) data from the DL4600 series DLTS Spectrometer.