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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.

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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

real practical value. An efficient nonlinear material, such as KTP, or γ-BaB_2O_4, combined with a simple YAG laser, may also fulfil the demands mentioned above. Further, the doping possibility of YAG by Cr^{3+} and the sensitivity of Nd:YAG to γ-radiation depend critically on the growth conditions (protective atmosphere) and on the content of traces of group VIII*b* ions, such as iron or iridium. Such matters have not been referred to in the book.

Nevertheless, the facts given in this book condense a large amount of valuable information. This book, therefore, can be used by scientists and students in the field of quantum electronics as well as those engaged in materials sciences and technology.

J. KVAPIL

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Books Received

The following books have been received by the Editor. Brief and generally uncritical notices are given of works of marginal crystallographic interest; occasionally a book of fundamental interest is included under this heading because of difficulty in finding a suitable reviewer without great delay.

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Recent advances in X-ray characterisation of materials. Edited by *P. Krishna*. Pp. vii + 514. Oxford: Pergamon Press, 1987. Price DM 300. This book is the hard-cover version of what has already appeared in print in Vol. 14 of the review journal *Progress in Crystal Growth and Characterisation*. There are 12 chapters of various lengths, written by some 16 authors from West Germany, Austria, France, UK, India, Japan and Australia. The text is reproduced from typescripts of a wide range of quality and style, often unpleasantly dense on the page, but always legible. The topics covered range from topography to XRF analysis, and emphasize the physics of crystals almost exclusively.

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

Physics of radiation effects in crystals. Edited by *R. A. Johnson and A. N. Orlov*. Pp. xii + 723. Amsterdam: North-Holland, 1986. Price Dfl 395.00. Available in USA/Canada from Elsevier Science Publishers, 52 Vanderbilt Ave, New York, NY 10017, USA. A review of this book, by H. E. Kissinger, has been published in the September 1987 issue of *Acta Crystallographica*, Section A, page 736.