



CRYSTALLOGRAPHY NEWS



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CONTENTS

1. INTERNATIONAL UNION OF CRYSTALLOGRAPHY
2. DURHAM CRYSTALLOGRAPHY MEETING
3. PROGRESS TOWARDS THE FORMATION OF THE B.C.A.
4. CHEMICAL CRYSTALLOGRAPHY GROUP PROGRAMME
5. 7TH EUROPEAN CRYSTALLOGRAPHIC MEETING
6. THE GAME OF THE NAME
7. BOOKS
8. UK MOLECULAR GRAPHICS GROUP
9. CRYSTALLOGRAPHY NEWS
10. FORTHCOMING MEETINGS & COURSES

1.

THE INTERNATIONAL UNION OF CRYSTALLOGRAPHY

The IUCr was established in 1948 as a consequence of the post-World War II efforts of P. P. Ewald and Sir Lawrence Bragg and the advice and encouragement of Max von Laue. Bragg became the first President of the IUCr in 1948 when the first assembly was held at Harvard University and Ewald became President in later years.

At present 33 countries maintain formal membership in the Union through their National Academies or other selected national organizations. Scientists from many countries that do not maintain formal membership in the Union also participate in the Congresses and sponsored meetings.

As a scientific union that publishes fairly extensively, the IUCr produces *Acta Crystallographica*, *The Journal of Applied Crystallography*, *Structure Reports* and *International Tables of Crystallography* and it also sponsors the production of many books on crystallographic subjects that arise from special schools and symposia. A popular series of pamphlets for instructional purposes is also produced under the auspices of the IUCr.

The schools and symposia are generally held under the auspices of the 14 Commissions of the Union. The titles, Commission on Charge, Spin and Momentum Density, Commission on Neutron Diffraction and Commission on Biological Macromolecular Crystallography, as examples, give an indication of the broad range of subjects covered. The Commissions are also responsible for coordinating special studies that often involve the collaboration of numerous laboratories around the world.

Another major activity of the IUCr concerns the sponsorship and, on occasion, the financial support of numerous meetings each year. In each case, the meetings have a relevance to the field of crystallography. Because of the close relationship of the field of crystallography to many other scientific disciplines, the sponsored meetings cover a wide range of subjects.

Among the future concerns of the IUCr are revisions of the character of the journal publications, the production of new volumes of *International Tables*, new developments in the publication and dissemination of scientific information and service to the special needs of scientists in developing countries and young scientists in all countries.

Jerome Karle, Chief Scientist of the Laboratory for the Structure of Matter, Naval Research Laboratory, Washington, D.C. has been elected President of the International Union of Crystallography for a three-year term at the Twelfth Congress of the IUCr held in Ottawa, Canada during this past August.

DURHAM CRYSTALLOGRAPHY MEETING AND THE
 INAUGURAL MEETING OF THE
 BRITISH CRYSTALLOGRAPHIC ASSOCIATION

5 - 8 April 1982

Van Mildert College, Durham

By the time this Newsletter is published, the programme of the Annual Spring Meeting will have been finalized. As many readers will be aware, the meeting is to cover the whole field of crystallography so that representatives of all areas of activity will be present at the inauguration of the B.C.A. In addition to the speakers previously listed in the last Newsletter the following have agreed to speak.

Dr. J. Helliwell (Daresbury and University of Keele)

"The Impact of Synchrotron Radiation on Protein Crystallography"

Dr. G. Dodson (University of York)

"Structure Refinement"

The speakers in the Industrial Symposium have also been finalized. They are:

Mr. S. Fletcher (ICI Mond)

Dr. I. Ferguson (UKEA Springfields)

Mr. E. Smith (B.P. Research Centre)

Mr. J. Harding (British Rail)

Dr. B. Isherwood (G.E.C. Hirst Centre)

Dr. C. Dineen (G.E.C. Hirst Centre)

Very significant interest has been shown in this symposium which seeks to review the status of X-ray diffraction in an industrial context. A number of poster papers have been received from industrial workers for the afternoon session.

A few more poster papers can be accommodated. Poster boards are 1.2 m square with space above for a title. Material can be affixed by pins to the board. Text should be readable at a distance of approximately 2 metres.

British Rail are offering cut price return rail tickets to the Durham meeting and forms will be sent with acknowledgement of registration.

Limited funds are becoming available for bursaries to support young crystallographers who may otherwise have no financial support. Applicants should contact the meeting Convenor, Dr. B.K. Tanner, Department of Physics, Durham University, Durham DH1 3LE as soon as possible.

Registration forms can be obtained from Dr. J. Halfpenny, Department of Chemistry, Durham University, South Road, Durham DH1 3LE. They should be returned to her as soon as possible.

Brian Tanner

3. Progress towards the formation of the British Crystallographic Association

The BCA will be formed at its inaugural meeting on Tuesday 6 April during the Durham Crystallographic Meeting at the University of Durham from 5 to 8 April. Everyone interested in crystallography is invited to take part. The inauguration will take the form of an open business meeting from 4.30 to 5 p.m. followed by the Inaugural Lecture. At 6.15 p.m. there will be a sherry reception in the Gulbenkian Museum, during which documents relating to the formation of the X-ray Analysis Group (now the IOP Crystallography Group) and the Chemical Crystallography Group will be on display. Then at 7.30 p.m. there will be the Inaugural Dinner at which a toast to the BCA will be proposed by the chairmen of the two existing crystallography groups, Professor M.M. Woolfson and Professor G.A. Sim, and the reply on behalf of the BCA will be by the President of its provisional Council, Professor Sir David Phillips.

The Inaugural Lecture will trace the history of the organisation of crystallography in the U.K., including the formation of the X-ray Analysis Group, the International Union of Crystallography and the Chemical Crystallography Group. Professor Dorothy Hodgkin O.M., F.R.S. has agreed to give this lecture and, at her suggestion, Professor Henry Lipson, F.R.S. will also take part.

At the business meeting, the members who have so far agreed to serve on the provisional Council of the BCA (reported in the December issue of 'Crystallography News') will be presented for approval and there will be an election of three ordinary members of the Council. Nominations are now invited for these three vacancies, and should be accompanied by the names of the proposer and seconder and the written consent of the nominee to serve if elected. Such nominations should be sent to the Secretary of the provisional Council., Dr. A.C. Skapski, Department of Chemistry, Imperial College, South Kensington, London SW7 2AY, to reach him no later than Wednesday 31 March.

The Working Party and the provisional Council are still waiting to hear from the Charity Commissioners about the application for charitable status for the BCA. Although the formation of the BCA does not depend on the possibility of obtaining charitable status, it is only after such status has been achieved that it will be possible for the BCA to recover income tax from membership subscriptions. This is why the hope that was expressed in the last issue, that an appeal for Members and Founder Members of the BCA could be made early in 1982, has not yet materialised. It will now have to be made after the inaugural meeting at Durham. However, that meeting will be an open one, to which everyone is invited. A reminder about registration for the Durham Crystallographic Meeting (by 15 March) appears elsewhere in this issue.

S.C.Wallwork

4. Chemical Crystallography Group Future Programme

(a) Spring Meeting

The Spring Meeting of the Group is the Durham Crystallographic Meeting at the University of Durham, from 5 to 8 April 1982. This is a joint meeting with the Institute of Physics Crystallography Group and it is also the Inaugural Meeting of the British Crystallographic Association. Details and registration forms have already been circulated but further copies may be obtained from Dr. Joan C. Halfpenny, Chemistry Department, University of Durham, South Road, Durham DH1 3LE. The registration deadline is 15 March 1982.

(b) Annual General Meeting

Although the last AGM was in September 1981, members will recollect that it was agreed that, in future, AGMs should be held in spring, to follow shortly after the end of the Royal Society of Chemistry's accounting year on 31 December. The next AGM of the Group will therefore be held during the Durham Crystallographic Meeting, at 5.45 p.m. on Wednesday 7 April 1982, in the Physics Department of the University of Durham. Papers for this AGM are enclosed with the copies of this issue of 'Crystallography News' circulated to members of the Chemical Crystallography Group.

(c) Autumn Meeting

As is often the case, the Autumn Meeting of the Group will be held as part of the Royal Society of Chemistry's Autumn Meeting. This year, the whole RSC meeting lasts from 21 to 23 September 1982 and will take place at the Heriot-Watt University, Edinburgh. The Section of the meeting devoted to our Group Meeting will almost certainly be the afternoon of Wednesday 22 September and the morning of Thursday 23 September. The topic will be 'Neutron and Electron Diffraction, including Accurate Electron Densities' and there will be three invited papers and a number of contributed papers. Professor Aafje Vos of the Rijksuniversiteit, Groningen, The Netherlands, has already agreed to give an invited paper entitled 'Results and pitfalls in accurate electron density studies' and Dr. D.W.H. Rankin of the Department of Chemistry, University of Edinburgh has agreed to give a talk on electron diffraction entitled 'Floppy molecules: the influence of phase on apparent geometry'. Dr. A.J. Nelmes of the Department of Physics, the University of Edinburgh has been invited to give a talk on neutron diffraction, particularly in relation to changes of phase of hydrogen-bonded solids.

Contributed papers on the conference topics are now invited and should be submitted, in the form of a title and synopsis of not more than 250 words, to Dr. John F. Gibson, The Royal Society of Chemistry, Burlington House, London W1Y 0BN, by Monday 10 May 1982. Members intending to take part in the conference are asked to request further information from, and to send a self-addressed label (name and address) to, Dr. John F. Gibson at the above address. They will then be sent details of the whole RSC Autumn Meeting when these become available in June.

S.C.Wallwork (Secretary)

5.

SEVENTH EUROPEAN CRYSTALLOGRAPHIC MEETING

The Israel Crystallographic Society takes pleasure in inviting you to attend the Seventh European Crystallographic Meeting, to be held in Jerusalem, at the Hebrew University, under the sponsorship of the Israel Academy of Sciences.

The conference will open on Sunday, August 29, 1982, with scientific sessions from Monday, August 30, through Friday, September 3.

The conference is open to contributions on all aspects of crystallography.

The scientific programme will include invited plenary lectures and some oral papers chosen from submitted abstracts. Most contributed papers will be presented in poster sessions.

The main topics of the meeting and of the plenary lectures are:

1. Diffraction Theory and Practice
2. Methods of Structure Determination and Refinement
3. Physics and Chemistry of Solids
4. Crystallography of Biomacromolecules
5. Structural Studies of Small and Medium Molecules

There will also be a conference symposium on "Computers in Crystallography".

The conference site is the Mount Scopus Campus of the Hebrew University, overlooking the Old City of Jerusalem, the Judean Desert and the Dead Sea. Commercial and non-commercial apparatus and materials of relevance to crystallography will be exhibited during the conference.

For further information: ECM-7 Secretariat
P. O. Box 29313
Tel Aviv 61292
Israel

Conference Organisers: International Ltd.
10 Rothschild Blvd.
Tel Aviv 65121
Israel
Tel. 03-654541

6. THE GAME OF THE NAME

A trivial but interesting problem has arisen with respect to the formation of the British Crystallographic Association concerning the name of the Institute of Physics Crystallography Group. The chemists have pointed out that the BCA will begin with two constituent Groups - the Chemical Crystallography Group and the Crystallography Group which is a little odd and certainly lacks balance. The Crystallography Group Committee spent a little time on this problem recently and were happy neither with "The Physical Crystallography Group" nor "The Physics Crystallography Group" especially when it had appended "of the Institute of Physics".

A small prize (copy of a well-known textbook on crystallography) is offered by the Chairman for a name which would fit well the association with both the BCA and the IoP and which is accepted at the AGM. If all else fails then we could have two names - eg the Crystallography Group of the IoP but the Physics Crystallography Group of the BCA. Your views and suggestions are invited.

M M Woolfson
Chairman
Crystallography Group of the
Institute of Physics

7.

BOOKS

Structural Crystallography in Chemistry and Biology. Edited by J. P. Glusker. 1981 Hutchinson Ross Publishing Company: Stroudsburg, PA. \$50.00.

This is a volume of reprints of papers in the field of structural crystallography together with editorial comments. The original paper by Friedrich, Knipping and Laue has been translated into English by John Stezowski. Some early structural papers (sodium chloride, diamond, magnesium stannide, hexamethylene tetramine) follow an article by Ewald on dynamical diffraction. Benchmark Papers on methods of structure determination are grouped into sections on optical analogues, the Patterson function, the method of isomorphous replacement (including the application to proteins), direct methods, anomalous dispersion and refinement methods. In the area of chemistry the fields covered include ionic crystals, minerals, benzene, sterols, vitamin B₁₂, boron hydrides, xenon fluorides, solid state reactions, reaction pathways, catalysis by surfaces, bonding electrons and electron microscopy. In the area of biology the fields covered include the α -helix, helical diffraction, structures of myoglobin, hemoglobin, lysozyme and carboxypeptidase and their presumed modes of action, the structures of the purple membrane protein, DNA, transfer RNA and tobacco mosaic virus. A set of secondary references has been developed for those interested in reading further.

Modern Crystallography I. Symmetry of Crystals, Methods of Structural Crystallography. B. K. Vainshtein. Springer Series in Solid-State Sciences 15. 1981 Springer-Verlag: Berlin, Heidelberg, New York. \$47.50.

Here is a text for all crystallographers. It is the first of a series of four volumes on modern crystallography. The book begins with a description of the macroscopic characteristics of crystals and includes some very useful photographs. Then follows a discussion of symmetry, and includes some colored diagrams for the sections on color symmetry groups and point antisymmetry groups. The next sections are on geometric crystallography and goniometry (including experimental details), lattice geometry and lattice transformations.

In the description of the structure analysis of crystals Professor Vainshtein discusses diffraction theory and includes thermal diffusion scattering, extinctions, details of the kinematic and dynamic theories, scattering by noncrystalline substances and small-angle scattering. Experimental techniques described include photographic methods from Laue photographs to oscillation photographs of protein, and Debye-Scherrer cameras.

The phase problem, Patterson functions, direct methods and structure refinement are then described with some notes on the automation of structure analysis. The book ends with similar details for electron diffraction (including LEED), neutron diffraction, Mössbauer diffraction and scattering of nuclear particles in crystals.

This book is noteworthy for two reasons. Each subject is discussed in depth and with elegance. However, the discussion for each subject is extended into more areas than is generally found in crystallography texts. This will make it essential for everyone's bookshelf.

Topics in Nucleic Acid Structure. Edited by S. Neidle. A Halsted Press Book. 1981 John Wiley & Sons: New York. \$59.95.

This is a book on DNA structure and what has been learned about it from X-ray crystallographic studies. It starts with an article by Berman on conformational principles, followed by the descriptions of fragments of DNA and RNA (with instructions on how to calculate dihedral, bend and twist angles). Sarma and Dhingra have written a chapter on NMR studies of oligonucleotides in solution which ends with a discussion of the relationship between solution and solid-state data. Then follows a chapter by Arnott on the diffraction analysis of fibers and internal and external factors affecting DNA structure. Transfer RNA crystal structures are described by Kim and its solution structure by proton NMR is discussed by Reid. Then there are chapters on eukaryotic chromatin by Lilley, and on oligonucleotide and polynucleotide-drug complexes in the crystalline state, by Neidle, and in solution, by Krugh. This presents a useful overview of our detailed knowledge of nucleic acid structure from X-ray and NMR studies.

8.

UK MOLECULAR GRAPHICS GROUP

We have just started a UK Molecular Graphics Group that will be involved in all aspects of Molecular Graphics. The inaugural meeting is being held at Leeds on 8 January 1982.

The first major event of 1982 is a three-day meeting to be held at Oxford from 22-24 March. The title of this event is:

The Molecular Graphics Workshop: Recent advances in techniques, methods and equipment.

Topic areas covered in the workshop will include:

- Docking small molecules to macro molecules
- Drug design
- Surface representation
- Linking batch programs to interactive systems
- Novel graphics routines
- The man/machine interface
- New developments in graphics hardware

For further details of the workshop or the UK Molecular Graphics Group, researchers should contact:

Dr. A. J. Morffew
IBM UK Scientific Centre
Athelstan House
St. Clement Street
Winchester
Hampshire SO 23 9DR
United Kingdom

9.

CRYSTALLOGRAPHY NEWS

This is published four times a year in March, June, October and December. The copy date is the 20th day of the month preceding publication. "Camera-ready" items for inclusion should be sent to Dr Moreton Moore, Department of Physics, Royal Holloway College, Egham Hill, Egham, Surrey, TW20 0EX.

LIST OF FORTHCOMING MEETINGS

(M = meeting or conference)
(C = course or summer school)

1982

- 30 March - 1 April RSC Dalton Div. Annual Congress: Inorganic Chain and layer compounds; mineral chemistry, structure, bonding and spectroscopy (M)
University of Aston in Birmingham
Dr J F Gibson, RSC, Burlington House, London, W1V 0BN
- 5 - 8 April Crystallographers' Spring Meeting and Inauguration of the BCA (M)
Durham
Dr B K Tanner See previous issue
- 13 - 16 April 1st Internat. Symp. on Crystal growth processes in sedimentary environments (M)
Madrid
Dr R Rodriguez Clemente, Instituto de Geologia Consejo Superior de Investigaciones Cientificas, c/o Jose Gutierrez, Abascal 2, Madrid 6, Spain.
- 16 April Liquid crystals, materials and applications (M) Poole
Dr John F Gibson, Roy Soc of Chemistry, Burlington House, London W1V 0BN
- 21 - 23 April Int. Conf. on II - VI Compounds (M) Durham, England
Dr J Woods, Department of Applied Physics & Electronics, Univ. of Durham,
South Road, Durham, DH1 3LE
- 1 - 4 June Brookhaven Symposium on neutrons in biology (M) Upton, New York, USA.
Dr B P Schoenborn, Biology Dept., Brookhaven National Laboratory, Upton, LI
NY 11973, USA
- 6 - 11 June 3rd Int. Symp. on Radiation Protection (M) Inverness
c/o NRPB, Harwell, Didcot, Oxon, OX11 0RQ
- 7 - 9 June 2nd Europ Conf on Solid State Chemistry (M) DeKoningshof, Eindhoven, Netherlands
Ir. H.J.M. Heijligers, Eindhoven, Univ. of Technology, P O Box 513, 5600 MB Eindhoven
Netherlands.
- 7 - 16 June Workshop on Crystallography of Molecular Biology (C) Erice, Sicily.
Prof. T L. Blundell, Dept. Crystallography, Birkbeck College, Malet St.,
London WC1E 7HX
- 6 - 9 July Internat. conf. on inorganic stereochemistry (M) Reading
Dr J F Gibson, RSC, Burlington House, London, W1V 0BN
- 12 - 16 July Gordon Research Conf. on Crystal Growth (M) Holderness, New Hampshire, USA
Dr E A Giess, IBM Thomas J Watson Research Center, P O Box 218, Yorktown Heights,
New York 10598, USA

1982

- 12 - 21 July 1982 Workshop on crystal structure determination (C) Georgetown, Washington DC
J. Karle, 6030, Lab. for the Structure of Matter, Naval Research Lab.,
Washington DC, 20375 USA
- 14 - 16 July Biochemical Society Meeting : Structure and Function of Proteins & Nucleic Acids
(M) Oxford.
Biochemical Society, 7 Warwick Course, High Holborn, London WC1R 5DP
- 2 - 6 August Denver Conf. on Applications of X-ray Analysis (M & C)
Denver, Colorado, USA
Mrs M Cain, Denver Research Institute, University of Denver, Colorado, 80208, USA
- 6 - 12 August Internat. conf. and summer course on martensitic transformations (M & C)
Leuven, Belgium.
Prof L Delaey, Dept. Metaalkunde, Katholieke Universiteit Leuven de Croylaan 2,
B-3030 Heverlee, Belgium.
- 9 - 13 August Int. Conf. on X-ray and VUV Synchrotron Radiation Instrumentation
(M) Hamburg, Feb. Rep. Germany
Prof. B Buras, Risø National Lab., DK-4000 Roskilde, Denmark.
- 10 - 14 August Intern. Sch. on Electron Microscopy of Magnetic Materials (C)
Vienna, Austria
Dr J Fidler, Inst. f. Angewandte und Technische Physik, Technische Universität
Wien, Karlsplatz 13, A-1040 Wien, Austria.
- 15 - 20 August ACA Meeting (M) San Diego, California
Dr S T Freer, Dept. of Chemistry, B-017, Univ. of California, San Diego,
La Jolla, CA 92093, USA.
- 17-24 August Intern. Congress on Electron Microscopy (M) Hamburg, Germany
Deutsches Reisebüro GmbH, Dammtorstrasse 12, 2000 Hamburg 36, Fed. Rep of Germany.
- 21 - 26 August 11th Hungarian Diffraction Conf. (M) Győr, Hungary
Mrs E Nagy, Roland Eötvös Physical Society, H-1368 Budapest P O B 240, Hungary
- 23 - 27 August 22nd Internat. Conf. on Coordination Chemistry (M) Budapest, Hungary
Prof. M T Beck, Kossuth Lajos Univ., Dept. Phys. Chem., P O Box 7, Debrecen 10
Hungary 4010
- 23 - 27 August X-ray and Atomic Inner Shell Physics (M) Eugene, Oregon
Prof B Crasemann, Physics Dept, Univ of Oregon, Eugene, Oregon 97403 USA
- 23 - 28 August Europ. Mtg. on crystal growth 82: materials for electronics (M)
Prague, Czechoslovakia J. Zemlicka, EMCG 82, Cukrovarnická 10, 16 253 Prague,
Czechoslovakia

1982

- 25 - 30 August Sagamore VII Conf. on Charge, Spin and Momentum Denisties (X-ray, neutron & electron diffraction and scattering). (M) Nikko, Japan
Prof. Y. Saito, Chemistry Dept, Univ. of Keio, 14-1 Hiyoshi, 3 chome, Kohokuku, Yokohama, Japan.
- 29 August -
2 Sept Interrelations between processing, structure and properties of polymeric materials (M) Athens, Greece.
Prof. E. Dilari, Greek Chemists Association, 27, Kaningos Str., Athens 147, Greece.
- 29 August -
3 September 7th European Crystallographic Meeting ECM-7 (M) Jerusalem, Israel
Prof. J. Bernstein, Dept. Chemistry, Ben-Gurion University of the Negev, Beer Sheva 84120, Israel.
- 30 August -
3 September 9th Int. Liquid Crystal Conf. & Exhibition (M) Cracow, Poland
Dr W Witko, Inst of Nuclear Physics, ul. Radzikowskiego 152, PL-31-342 CRACOW, Poland.
- 30 August -
3 September 4th Europhysical Topical Conf: Lattice Defects in Ionic Solids (M) Dublin, Ireland,
Dr J Corish, Dept. of Chem., Univ. College, Belfield, Dublin 4, Ireland.
- 31 August -
3 September 12th Int. Conf. on Defects in Semiconductors (M) Amsterdam
Municipal COngress Bureau Oudezijds Achterburgwal 199 1012 DK Amsterdam, The Netherlands
- 1 - 3 September Yamada Conf. on Neutron Scattering of Condensed Matter (M) Tokyo, Japan
Prof. Y Itoh, Inst for Solid State Physics, Univ. of Tokyo, Toppongi, Minato-ku, Tokyo 106, Japan.
- 6 - 9 September 4th Europ. Symp. on Chemical Structure - Biological Activity (M) Bath, UK.
Dr J C Dearden, School of Pharmacy, Liverpool Polytechnic, Byrom St., Liverpool, L3 3AF.
- 6 - 9 September 4th Symp. on Organic Crystal Chemistry (M) POZNAN, Poland.
Prof. Z Kałuski, Inst. of Chemistry UAM, 60-780 Poznan, Grunwaldzka 6, Poland
- 6 - 10 September Brit. Assoc. for the Advancement of Science (M) Liverpool
BAAS, Fortress House, 23 Savile Row, London W1X 1AB
- 6 - 10 September 16th Int. Conf. on Physics of Semiconductors, (plus six associated meetings). (M) Montpellier, France.
Prof. B Pistoulet, Centre d'Etudes d'Electronique des Solides, Université des Sciences et Techniques du Languedoc, Place E Bataillon, 34060 Montpellier, Cedex, France.
- 13 - 15 Sept Int. Conf. on Semiconductors in the VUV: Applications of Synchrotron Radiation (M)
Berlin, Frau L Schulz, BESSY, Lentzeallee 100, 1000 Berlin 33, Red. Rep. Germany.

- 13 - 17 Sept The Neutron and its Applications (M) Cambridge
Dr Peter Schofield, AERE, Harwell, Didcot, Oxon OX11 0RA
- 16 - 17 Sept Molecular beams and Molecular structure (M) Univ. of Bristol
Dr J F Gibson, RSC, Burlington House, London, W1V 0BN
- 20-24 Sept 10th Molecular Crystal Symposium St Jovite, Canada
D. Chartrand, National Research Council, Ottawa, Canada K1A 0R6
- 21-24 Sept 14th Europhysics Conf. on Macromolecular Physics Polymer Crystals : Structure and
Morphology (M) Vilafranca del Penedes, Barcelona
Dr F J Baltá Calleja, Inst. Estructura de la Materia (CSIC), Serrano 119, Madrid, Spain
- 22-23 Sept Chemical Crystallography Group Autumn Meeting. Neutron & electron diffraction, including
accurate electron densities (M)
Heriot-Watt University, Edinburgh
Dr John F Gibson, The Royal Society of Chemistry, Burlington House, London, W1V 0BN
- 22-24 Sept British Association for Crystal Growth (BACG) Annual Meeting (M) Oxford.
Dr P Dryburgh, Electrical Engineering Department, Univ. of Edinburgh, EH9 3JL
- 18-23 October French Radiation Protection Society Mtg (M) Avignon, France.
Secrétariat Général SFRP, B.P. No 72, F-92260 Fontenay-aux-Roses, France.

1983

- 7 - 11 Feb Material structure and electron microscopy (C) Bochum, Fed. Rep. Germany
Deutsche Gesellschaft für Metallkunde e.V, Adenauerallee 21, D-6370 Oberursel, Fed Rep
Germany.
- 9 February Optical Microscopy in Industry (M) 23 Savile Row, London
Dr J F Gibson, RSC, Burlington House, London, W1V 0BN
- 14-18 March ACA Meeting (M) Columbia, Missouri
Dr W B Yelon, Univ. of Missouri, Research Reactor Facility, Columbia, Missouri 65201
USA
- 21 March - X-ray Crystallography & Drug Action (C) Erice, Sicily.
1 April Prof. L. Riva di Sanseverino, Istituto di Mineralogia, Piazza San Donato 1,
40127 Bologna, Italy.
- 28 - 30 March EPS Condensed Matter Conf. (M) Lausanne
Dr E Mooser, Institut de Physique Appliquée, EPFL-Ecublens, CH-1015 Lausanne, Switzerland.
- 28-31 March Crystallographers' Spring Meeting: British Crystallographic Association (M)
Royal Holloway College, Egham
Dr M Moore, Dept. of Physics, Royal Holloway College, Egham Hill, Egham, Surrey, TW20 0EX.

- 11-13 April RSC Dalton Div. Annual Congress: Polyhedral Clusters of Main Group Elements
(M) Univ. of Lancaster.
Dr J F Gibson, RSC, Burlington House, LONDON, W1V 0BN
- 16-20 May 5th National School and Conference on X-ray analysis (M) Melbourne, Australia
Mr R A Coyle, P O Box 90, Parkville 3052, Victoria, Australia.
- 1-5 August ACA Meeting and Denver Diffraction Conf. (M) Snowmass, Colorado, USA
Prof R D Witters, Dept of Chemistry, Colorado School of Mines, Golden, Co 80401, USA
- 8-12 August 8th European Crystallographic Meeting (M) Liège
M Léon Dupont, Institut de Physique B5, Université de Liège Sart-Tilman,
B-4000 LIEGE, Belgium.
- 6-9 August 2nd USA-French Cooperative Science Seminar on Topography (M) Snowmass, Colorado
Prof. Sigmund Weissman, Rutgers Univ, Mechanics & Materials Science Dept
Piscataway, NJ 08854, USA
- 3-10 Sept 5th Internat. Summer School on Crystal Growth (C) Riederalp, Switzerland
Dr H Arend, Lab. für Festkörperphysik ETH, CH-8093, Zurich, Switzerland
- 5-9 Sept IUPAC 29th Int. Symp on Macromolecules (M) Bucharest
IUPAC MACRO '83 Calea Plevnei 139, R-77131 - Bucharest, Romania
- 12-16 Sept 7th Internat. Conf. on Crystal Growth (M) Stuttgart, Fed. Rep Germany
Dr K W Benz, Kristallabor., Physikalisches Institut der Universität,
Pfaffenwaldring 57, 7000-Stuttgart-80, Fed. Rep Germany
- 13-16 Sept 13th Europ. solid state device research Conf. & 8th symposium on solid state device
technology (M) Canterbury.
The Meetings Officer, IoP, 47 Belgrave Square, London SW1X 8QX
- 25-30 Sept 5th Europ Mtg on Ferroelectricity. (M) Torremolinos, Spain
Dr B Jiménez, Centro de Fisica Aplicada "L. Torres Quevedo". Serrano 144, Madrid-6, Spain

1984

- 9-18 August XIII I.U. Cr. Congress (M) Hamburg
Prof. Dr. H. Saalfeld, Mineralog-Petrogr. Institut, Universität Hamburg, Grindelallee 48,
D-2000 Hamburg 12, Fed. Rep. Germany.