



AUSTRALIAN INSTITUTE OF PHYSICS

# Fifth National Physics Congress

AUSTRALIAN NATIONAL UNIVERSITY  
AUGUST 1982

AUSTRALIAN INSTITUTE OF PHYSICS  
FIFTH NATIONAL PHYSICS CONGRESS  
AUSTRALIAN NATIONAL UNIVERSITY, CANBERRA

23-27 AUGUST 1982

CONGRESS HANDBOOK

ORGANISING COMMITTEE

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WELCOMING ADDRESSES

VICE-CHANCELLOR, AUSTRALIAN NATIONAL UNIVERSITY 2  
PROFESSOR PETER KARMEL

CHAIRMAN OF THE ORGANISING COMMITTEE 3  
PROFESSOR W.A. RUNCIMAN

CHAIRMAN OF THE ACT BRANCH OF THE AIP 4  
DR. O.J. RAYMOND

I am pleased to welcome the AIP Fifth National Physics Congress to the campus of the Australian National University. Physics has played a prominent role at the ANU from the earliest days of the University. The Research School of Physical Sciences was one of the first four Schools comprising what is now known as the Institute of Advanced Studies. Appropriately, your Congress is to be opened by Sir Mark Oliphant, the first Director of the School. The majority of your sessions will be held in the Leonard Huxley Lecture Theatre, named after one of my predecessors, himself a distinguished physicist.

On this first occasion that the Congress has come to the national capital, the focal point for Australia's formal international scientific links, it is appropriate that, when planning this Congress, the organisers should have looked outside Australia to their colleagues in Asian Countries. I am delighted that some have been able to accept an invitation to attend the Congress and to participate in the symposia which make up the program.

To all our visitors from overseas and from within Australia, I extend a warm welcome on behalf of the ANU. I look forward to greeting you at the opening ceremony and wish the Congress every success.

Peter Karmel  
Vice-Chancellor  
Australian National University

On behalf of the Organising Committee I have pleasure in welcoming you to the AIP Fifth National Physics Congress. In planning the Congress we have aimed to provide a program of invited lectures which are of general interest and which do not compete with the specialist conferences also held under the auspices of the AIP. For the most part parallel sessions have been avoided in order to encourage the interactions of physicists with a great variety of backgrounds.

The Congress has received generous support from the Australian Development Assistance Bureau and the British Council. It is through the former that it has been possible to extend invitations to a number of Asian physicists to participate in the Congress. I hope that this will prove to be a forerunner for regional congresses involving, for example, the recently formed Asian Physical Society.

The Congress will be opened by Sir Mark Oliphant, A.C., K.B.E., F.R.S., F.A.A., who is especially well known in Canberra since he was the first Director of the Research School of Physical Sciences from 1950-63 and has retired to Canberra after being Governor of South Australia from 1971-76. Professor Ramachandra Rao, until recently Vice-chairman of the University Grants Commission in New Delhi, will address a few remarks as one of our invited Asian speakers. The opening address will be delivered by Professor Peter Karmel, recently appointed Vice-Chancellor of the Australian National University.

Morning sessions will be devoted to scientific sessions featuring invited speakers. In the afternoons, there are poster sessions, visits to Questacon and some workshops which will allow considerable time for discussion. I hope that you will enjoy these more informal sessions which will depend on the contributions from participants for their success. Professor Neville Fletcher, F.A.A., Chairman of the AIP will provide closing remarks. The Organising Committee looks forward to meeting you during the Congress.

W.A. Runciman  
Chairman of the Organising Committee

On behalf of the members of the Australian Capital Territory Branch, welcome to the AIP Fifth National Physics Congress.

As can be seen from the accompanying program, the various Sessions and Workshops of the Congress cover a range of topics of wide interest and each important to the development of future directions for Physics in Australia. The Congress proceedings will have significant implications for the future of Australia itself through education, research, technology and other basic aspects of the life of this country and of its regional neighbours. I instance just two ways in which this will happen.

Among the topics for discussion under Physics Education and Training will be the question of what project or projects should next be suggested to the Australian Academy of Science in support of science education in primary and secondary schools. Given the notably successful precedent of the biologists' "Web of Life" and the importance of good physics education at all levels, this topic will be of great interest to many, and especially to physicists, including physics teachers.

Last year, the National Committee for Physics of the Academy of Science prepared a report on Physics in Australia, reviewing physics activities in this country. It was published earlier this year. During the Session on Physics in Australia, Past and Future, Professor Angas Hurst (Chairman of the National Committee) will raise for discussion many of the questions this report raises for the future development of physics in Australia. Clearly, in this way and many others the Congress will provide you with a rare opportunity of contributing your ideas and views on this very important subject in a major national forum.

The Congress Organising Committee has made a special and very successful effort to attract to the Congress many noted overseas speakers - from America, Britain and particularly from our Asian neighbours. Together with the many prominent Australian speakers, they offer a programme of great and wide attraction.

The Royal Australian Chemical Institute is holding its Seventh National Convention at the ANU at the same time as our Congress. There will, therefore, be opportunities for interaction between the two disciplines, including joint activities and arrangements as set out in the Congress brochure.

While in Canberra, I hope you will take the opportunity to visit some of the many places of interest in and around the national capital. Especially, I recommend a visit to the Questacon, the thriving, imaginative science centre established by Dr. Michael Gore (see the May 1981 edition of The Australian Physicist) and featured in a recent ABC Science Show. Opportunities for visiting the Questacon are offered in the Congress program.

I look forward to seeing you at the Congress.

O.J. Raymond  
Chairman, ACT Branch, AIP

## GENERAL INFORMATION

### THE AUSTRALIAN NATIONAL UNIVERSITY

The Australian National University (ANU) in Canberra is the host venue for the Fifth National Physics Congress of the Australian Institute of Physics. The University was established as a research university in 1946, and now consists of seven Research Schools within the Institute of Advanced Studies and five undergraduate Teaching Faculties (formerly comprising the Canberra University College). It lies on the northern shore of Lake Burley Griffin only a short walk (~10 min) from the Civic Centre of Canberra. The Campus is well planned with great emphasis placed on landscape design to preserve a park-like quality. An outline map of the Campus is on the back cover of this book and a detailed map is included in the Congress folder.

### CONGRESS SESSIONS

#### Lectures

All Congress lectures will be held in the Leonard Huxley Lecture Theatre in the Solid State Physics/Computer Services Centre Building in Mills Road. This is a modern well-equipped lecture theatre which seats 214 people and includes provisions for: slide and film projection, overhead transparency projection, chalk and board and a loud speaker system. Speakers and chairmen are asked to adhere strictly to the timetable.

Slides should be given to the session convenors at least 15 minutes before commencement of the session in which the paper is to be given, and should be collected at the close of the session.

Workshops

The Alternative Energy Sources Workshop and the Physics Education and Training Workshop will also take place in the Leonard Huxley Lecture Theatre. The Cosmic Ray Workshop and the Physics and Reality Workshop are to be held in the Seminar Room of the Oliphant Building of the Research School of Physical Sciences, with the workshop on Numerical Procedures in Introductory Physics being held in Lecture Room 5, Physics Department, Faculty of Science.

Posters

The Poster Sessions will be in Room 301 of the Solid State Physics/Computer Services Centre Building. This room is directly above the Leonard Huxley Lecture Theatre. Posters will remain on display for the full day (9.00-6.00) and authors are expected to be present at their posters during the hour (1.30-2.30) allocated solely for the Poster Session. Posters should be displayed on the boards as numbered in the programme. Drawing pins, scissors, pens, etc. will be available.

Authors of the contributed poster papers are advised that prizes will be awarded to the three best posters of each session. An independent panel of three members will judge the posters based mainly on the presentation of the poster and its ability to impart a clear description and understanding of the work. The winners of each session will receive a fine wooden/metal representation of the Black Mountain Tower which overlooks the ANU Campus, with modest prizes being awarded to the authors of the second and third placed posters.

Study Room

Room 204, opposite the Leonard Huxley Lecture Theatre, will be available to Congress delegates as a study room.

MEALS AND REFRESHMENT ARRANGEMENTS

Free tea and coffee will be available at all morning and afternoon breaks.

A Congress Reception will be held at 7.30pm on Monday at University House, ANU, and the Congress Dinner will take place at the ANU Staff Centre on Thursday at 7.00pm for 7.30pm. The after dinner speaker will be Mr. Barry O. Jones, Opposition Spokesman on Science and Technology.

For Congress delegates not taking full board at Burton and Garran Halls, a number of alternatives exist. On Campus, lunches and evening meals may be obtained from the University Union, University House or the ANU Staff Centre. There is also a sandwich bar in the basement of the John Curtin School of Medical Research which is next to the Solid State Physics/Computer Services Centre Building. The Cellar Bar in University House and the Staff Centre provide meals on a self-service basis at modest prices. Meals of a good restaurant standard with an à la carte menu and a wide choice of wines may be obtained at the Bistro in University House. Reservations can be made for the Bistro by telephoning 495285 (outside ANU) or 7285 (within ANU). A Bottleshop-Buttery is situated in the basement at the south-west corner of University House which sells a wide range of wines, spirits, beers, tobacco, household goods, newspapers and magazines.

There are also many good restaurants in the Civic Centre and surrounding suburbs of Canberra. Ask at the Congress Desk for some suggestions.

USEFUL TELEPHONE NUMBERS

Congress - Department of Solid State Physics	49 4244
Research School of Physical Sciences (49 required for off campus only)	49 2468
Taxi Service	46 0444
Ansett Airlines of Australia	45 1111
Trans Australian Airways	68 3333
Railway Station - Canberra	95 1555

CONGRESS DESK

A Congress desk will be located in the area of the Leonard Huxley Lecture Theatre.

ACKNOWLEDGEMENTS

The Organising Committee wishes to acknowledge the generous support received from the Australian Development Assistance Bureau (ADAB), the Committee on Science and Technology in Developing Countries (COSTED) and the British Council. The support from ADAB and COSTED has enabled invitations to be extended to physicists from Asia to participate in the Congress. The Committee also wishes to acknowledge the support received from the following firms, whose advertisements appear elsewhere in this handbook, in particular the support given by Oxford Instruments Australia Pty. Ltd., in assisting Dr. W. Steyert's participation in the Congress;

CIG The Commonwealth Industrial Gases Limited  
 Dynavac Proprietary Ltd  
 GEC Australia Ltd  
 John Morris Scientific Pty Ltd  
 Monaro Research Labs Pty Ltd  
 Oxford Instruments Australia Pty Ltd  
 Selbys Scientific Ltd  
 Ulvac Corporation  
 Varian Pty Ltd.

The Committee also thank the following for their support;

ACT Schools Authority  
 Ansett Airlines  
 Commonwealth Banking Corporation  
 McGraw-Hill Book Company Pty Ltd  
 Texas Instruments  
 Rank Xerox (Australia) Pty Ltd.

The members of the Committee also wish to acknowledge the assistance provided by their base institutions and in particular thank the Australian National University for the use of their facilities.



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NOTES

11.

THE CONGRESS PROGRAMME

MONDAY 23 AUGUST

9.00-5.45

9.00-11.00

Registration at the Australian Academy of Science

OPENING SESSION

11.00-12.15

OPENING  
Australian Academy of Science  
Chairman: Professor W.A. Runciman

*Opening of the Congress*  
Professor Sir Mark Oliphant

*Supporting remarks*  
Professor B. Ramachandra Rao

*Opening address and welcome to the ANU  
Tertiary Education Funding - Implications for Scientific  
Training and Research*  
Professor Peter Karmel, Vice-Chancellor

LUNCH

SESSION A

APPLIED PHYSICS FOR THE FUTURE  
Leonard Huxley Lecture Theatre  
Chairman: Professor G.V.H. Wilson  
Convenors: Dr. D.H. Chaplin and Dr. P. Lynam

1.30-2.15

A1

*Applications of Nuclear Physics to Medicine*  
Professor J.H. Fremlin

2.15-3.00

A2

*Physics Applied to Communications in Australia*  
Professor L.W. Davies and Dr. D.R. Nicol

Refreshments

3.30-4.15

A3

*Magnetic Refrigeration*  
Dr. W.A. Steyert

4.15-5.00

A4

*Is Applied Physics Academically Acceptable?*  
Professor R.E. Collins

5.00-5.45

A5

*Power from the Ocean Wave*  
Professor F.J.M. Farley

7.30-9.00

CONGRESS RECEPTION  
University House, ANU

TUESDAY 24 AUGUST 9.00-5.30

## SESSION B

ALTERNATIVE ENERGY SOURCES I  
 (JOINT SESSION WITH RACI - see page 19)  
 Leonard Huxley Lecture Theatre  
 Chairman: Professor R.J. McDonald  
 Convenors: Dr. G.B. Gillman and Dr. N.B. Manson

- 9.00-9.45 B1 *The Availability of Solar and Wind Energy in Thailand*  
 Dr. R.H.B. Exell
- 9.45-10.30 B2 *Approaches to the Photochemical Conversion and Storage  
 of Solar Energy - An Overview*  
 Dr. W.H.F. Sasse
- Refreshments
- 10.50-11.30 B3 *Recent Developments in Thin Film Photovoltaics*  
 Professor D. Haneman
- 11.30-12.15 B4 *On the Extraction of Massive Amounts of Energy  
 from Sources Involving Gravitation*  
 Dr. M.A.K. Lodhi and Professor J.O'M. Bockris

LUNCH

## SESSION C

POSTER SESSION - CONTRIBUTED PAPERS  
 Room 301, Huxley Theatre Area  
 Convenor: Dr. S.J. Campbell

- 1.30-2.30 C1 to C14 *Atmospheric - Solid State:* see page 33

## SESSION D

SPACE PHYSICS AND ASTRONOMY  
 Leonard Huxley Lecture Theatre  
 Chairman: Professor J.H. Carver  
 Convenor: Professor W.A. Runciman

- 2.30-3.00 D1 *Application of the Shuttle Environment for Space  
 Physics Experiments*  
 Dr. J.P. Kerwin
- Refreshments
- 3.30-4.00 D2 *An Active Space Shuttle Experiment: Waves in Space  
 Plasmas (WISP)*  
 Dr. P.L. Dyson
- 4.00-4.50 D3 *An Overview of the Voyager Saturn Results*  
 Dr. C.H. Stenbridge
- 4.50-5.10 D4 *Starlab - The Scientific Aims*  
 Dr. A.W. Rodgers
- 5.10-5.30 D5 *A Wide Field, High Resolution Detector for the  
 Starlab Instrument Package*  
 Mr. T.E. Stapinski

## SESSION E

PUBLIC LECTURE  
 Australian Academy of Science  
 Chairman: Professor C.A. Hurst

- 7.30 E1 *Quantum Theory and Physical Reality*  
 Dr. J.S. Bell

Withingham's lecture

to ACSI Solid State Div. (Canberra School of Music 9.00 am)

WEDNESDAY 25 AUGUST 9.00-5.45

SESSION F

ALTERNATIVE ENERGY SOURCES II  
Leonard Huxley Lecture Theatre  
Chairman: Professor F.J.M. Farley  
Convenors: Dr. G.B. Gillman and Dr. N.B. Manson

9.00-9.45 F1 *An Overview of Alternative Energy Research in Indonesia with Special Emphasis on "Green Energy"*  
Dr. M.S.A. Sastroamidjojo

9.45-10.30 F2 *The Incorporation of New Energy Technologies into Existing Energy Systems*  
Dr. H. Saddler

Refreshments

10.50-11.30 F3 *Utilisation of Alternative Energy Sources in India*  
Professor S. Radhakrishna

11.30-12.15 F4 *Alternative Energy Sources in the Australian Context*  
Dr. W.J.McG. Tegart

WORKSHOP

COSMIC RAY WORKSHOP - see page 22  
Seminar Room, Oliphant Building  
Convenor: A/Professor L.S. Peak

LUNCH

SESSION G

POSTER SESSION - CONTRIBUTED PAPERS  
Room 301, Huxley Theatre area  
Convenor: Dr. S.J. Campbell

1.30-2.30 G1 to G14 *Energy: see page 35*

15.

WORKSHOP  
2.30-5.45

ALTERNATIVE ENERGY SOURCES WORKSHOP - see page 23  
Leonard Huxley Lecture Theatre  
Chairman: Dr. W.J.McG. Tegart  
Convenors: Dr. G.B. Gillman and Dr. N.B. Manson

Refreshments available

VISIT  
2.30-5.00

VISIT TO QUESTACON - see page 29  
Location - see map page 30  
Convenor: Dr. M.M. Gore

SESSION H

NUCLEAR WAR FORUM  
Chairman: Professor J.H. Fremlin  
Convenors: Professor W.A. Runciman  
and Professor R.E. Collins

7.30-8.10

Film - *The Last Epidemic*

8.10-8.20

H1 *Nuclear Explosions and the Atmosphere*  
Dr. A.B. Pittock

8.20-8.30

H2 *Atmospheric Ionisation and ElectroMagnetic Pulse (EMP) Effects of Nuclear Weapons*  
Dr. D.R. Hutton

8.30

Open Forum

THURSDAY 26 AUGUST 9.00-5.45

## SESSION I

PHYSICS EDUCATION AND TRAINING  
Leonard Huxley Lecture Theatre  
Chairman: Professor J.R. Prescott  
Convenors: Dr. A.M. Baxter and Dr. R.W. Crompton

- 9.00-9.35 I1 *Ernst Abbe, Where Are You Now? Physics in Education, Industry and Life*  
Professor P. Mason
- 9.35-10.10 I2 *Does a Training in Physics Suit Graduates for a Career in Industry?*  
Dr. R.G. Ward
- 10.10-10.45 I3 *Why Physics? A Secondary Teacher's Viewpoint*  
Ms. J.T. Powe
- Refreshments
- 11.05-11.40 I4 *The Training of Physicists in Instrument Maintenance, Research and Development*  
Professor B. Ramachandra Rao
- 11.40-12.15 I5 *Education and Training of Physicists of Developing Countries*  
Professor Chatar Singh

LUNCH

## SESSION J

POSTER SESSION - CONTRIBUTED PAPERS  
Room 301, Huxley Theatre Area  
Convenor: Dr. S.J. Campbell

- 1.30-2.30 J1 to J14 *Education-Quantum-General:* see page 37

WORKSHOP  
2.30-5.45

PHYSICS AND REALITY WORKSHOP - see page 24  
Seminar Room, Oliphant Building  
Chairman and Convenor: Dr. K. Kumar

Dr. J.S. Bell

WORKSHOP  
2.30-5.45

PHYSICS EDUCATION AND TRAINING WORKSHOP - see page 25  
Leonard Huxley Lecture Theatre  
Chairman: Professor R.E. Collins  
Convenor: Dr. J.P. Rayner

Refreshments available

WORKSHOP  
2.30-5.45

WORKSHOP ON NUMERICAL PROCEDURES IN INTRODUCTORY  
PHYSICS - see page 27  
Lecture Room 5, Physics Department, Faculty of Science  
Chairman and Convenor: Dr. A.M. Baxter

Professor R.M. Eisberg

CONGRESS DINNER  
7.00 for 7.30

ANU Staff Centre

*Physics, Politics and Other Fine Arts*  
Guest speaker: Mr. Barry O. Jones, MHR

FRIDAY 27 AUGUST	9.00-5.00	
SESSION K		PHYSICS IN AUSTRALIA, PAST AND FUTURE Leonard Huxley Lecture Theatre Chairman: Professor H.C. Bolton Convenor: Dr. A.M. Baxter
9.00-9.40	K1	<i>Between Class-room and Industrial Laboratory: the Emergence of Physics as a Profession in Australia</i> Professor R.W. Home
9.40-10.20	K2	<i>The Cavendish Tradition in Australian Physics - Time for Change</i> Dr. J.G. Jenkin  Refreshments
10.40-11.20	K3	<i>Physics in Australia in the Year 2000</i> Professor M.H. Brennan
11.20-12.00	K4	<i>The Future of Australian Physics - Who or What Will Determine It?</i> Professor C.A. Hurst
12.00-12.15		CLOSING REMARKS Professor N.H. Fletcher Award of Poster Prizes
		LUNCH
VISIT 1.30-5.00		VISIT TO QUESTACON - see page 29 Location - see map page 30 Convenor: Dr. M.M. Gore  Refreshments available
VISIT 1.30-4.00		TOUR OF THE RESEARCH SCHOOL OF PHYSICAL SCIENCES - see page 31 Meeting Point - Leonard Huxley Lecture Theatre Convenor: Dr. M.M. Hollis

THE ROYAL AUSTRALIAN CHEMICAL INSTITUTE - SEVENTH NATIONAL CONVENTION - CANBERRA 23-27 AUGUST 1982

This timetable summarizes the main features of the Convention. Details appear in the Convention Programme and Divisional or Group Abstracts. The following numerical code (1-19) is used for lecture theatres (locations given in campus map):

- (1) Canberra School of Music  
(2) Copland Theatre  
(3) Copland L.R.G4  
(4) Copland L.R.G7  
(5) Haydon-Allen Theatre  
(6) Haydon-Allen L.R.G21

- (7) Haydon-Allen L.R.G27  
(8) ANU Student Union  
(9) Geology Theatre  
(10) Chemistry Theatre I  
(11) R.S. Chem. Theatre  
(12) Physics Theatre I  
(13) Physics Theatre 6  
(14) Physics Theatre 8  
(15) Forestry Theatre  
(16) Forestry L.R. 103  
(17) JCSMR Florey Theatre  
(18) Huxley Theatre  
(19) Burgmann College

MONDAY 23RD AUGUST 1982

9.30-10.00 am OPENING SESSION (1)

10.30-11.30 am 1ST CONVENTION LECTURE (1) - Sir David Phillips

11.30-12.30 pm 2ND CONVENTION LECTURE (1) - Dr D. Weiss (RACI Applied Chemistry Medallist)

ANAL. CHEM.	CEREAL	CHEM. EDUC.	COLLOID	COMO	ELECTROCHEM.	IND. ENG. CHEM.	MED. & AGRIC. CHEM.	ORGANIC	PHYSICAL	POLYMER	SOLID STATE
1.30-4.30 (5) Automation Symposium with Chem. Ed. & I.E.C.	FREE (4) Lectures 4.45 Posters (8)	1.30-4.30 (5) Automation Symposium 4.30-5.30 (5) Lectures	2.00-3.00 (14) Lectures 3.30-5.30 Posters (8)	2.00-5.30 (12) Lectures	2.00-5.00 (9) Lectures 5.00 Posters & Mixer (8)	1.30-4.30 (5) Automation Symposium with Anal. & Chem.Ed.	2.00-4.30 (17) Genetic Engineering 4.30 Posters & Mixer (8)	2.00-3.00(10) 3.30-4.50 A(10) B(11) 4.55-5.30(10) Lectures	2.00-3.00 (6) Lectures 3.30 Posters & Mixer (8)	2.00-5.30 A(12) B(15) 7.00-8.30 Polymer Characterization (19)	2.00-3.00 (7) 3.30 Poster & Mixer (8)
9.00-5.30 (7) Automatic Systems for Chem. Analysis	9.00-4.40 (4) Lectures 4.45 Posters (8)	9.00-12.30 (5) Polymer Education 2.00-5.30 (5) Chemical Bonding Educ. Symposium	9.00-12.30 (14) Coagulation and Flotation 2.00-5.30 (14) Surface Chemistry	9.00-12.30 (2) Metallo-enzymes (12) Lectures	9.00-5.30 (9) Lectures Mineral, Electroanal, Nuclear & Photo-Electrochem.	9.00-5.00 (3) Accountability in Science Seminar	9.00-12.30 (17) Molec. & Biol. Action 2.00-5.30 (17) Enzyme Inhibitors-Design & Mechanism	9.00-10.00(10) 10.30-12.30 A(10) B(11) 2.00-3.00(10) 3.30-4.50 A(10) B(11) 4.55-5.30(10) Lectures	9.00-12.30 (6) Lectures 2.00-5.30 (5) Chemical Bonding Symposium with Chem. Education	9.00-12.30 A(5), B(15) C(2) 2.00-5.05 A(16) 2.00-5.30 B(15) 7.00 Posters & Mixer (19)	9.00-12.15 (18) Alternate Energy Sources 2.00-5.30 (13) Lectures

TUESDAY 24TH AUGUST

WEDNESDAY 25TH AUGUST

9.00-10.00 am 3RD CONVENTION LECTURE (1) - Dr M. S. Whittingham  
 10.30-11.30 am 4TH CONVENTION LECTURE (1) - Dr Mark S. Wrighton  
 11.30-12.30 pm 5TH CONVENTION LECTURE (1) - Dr L. N. Mander (RACI H.G. Smith Medallist)

ANAL. CHEM.	CERIAL	CHEM. EDUC.	COLLOID	COMO	ELECTROCHEM.	MED. & AGRIC. CHEM.	ORGANIC	PHYSICAL	POLYMER	SOLID STATE
2.00-5.30 (5) Anal. Chem. Education Symposium	1.45-4.30 (4) Lectures (4) Methods Symposium	2.00-5.30 (5) Anal. Chem. Education Symposium	2.00-5.10 (14) Concentrated Systems Symposium	FREE 7.00 Posters (8)	2.00-4.50 (11) Lectures 6.00-7.00 (11) Stokes Medal Address	2.00-4.45 (17) Selective Toxicity	FREE 7.00 Posters (Bruce Hall)	2.00-5.30 (6) Lectures	2.00-3.00(15) 3.30-5.30(15) Patents & Polymers 7.00-8.20 (19)	2.00-4.10(12) 4.10-5.30 4A(12) 4B(13) 2 Sessions Lectures

THURSDAY 26TH AUGUST

FREE	9.00-3.00 (4) Lectures	9.00-12.30 (7) Lectures 1.30-5.00 (7) Lectures 7.30 Questacon	9.00-5.30 (2) Rate (14) Biol. Membranes Processes Symposium	9.00-5.30 (12) Lectures & Symposium on Photo-Chemistry	9.00-5.30 (2) Rate Processes Symposium	9.00-12.30 (17) Drug Design 2.00-5.30 (17) Pesticides	9.00-10.00(10) 10.30-12.30 A(10) B(11) 2.00-3.00(10) 3.30-4.50 A(10) B(11) 4.55-5.30(10)	9.00-5.30 (2) Rate Processes Symposium	9.00-5.30 (2) Rate Processes Symposium 2.00-3.00(15) Lecture 6.30-7.30(17) Polymer Metallist	9.00-5.30 (2) Rate Processes Symposium
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FRIDAY 27TH AUGUST

FREE	FREE	Inservice (Academy of Science)	9.00-12.30 (14) Biol. Membranes 2.00-5.10 (14) Lectures	9.00-12.30 (2) Metals in Org. Chem. 2.00-3.00 (12) Burrows Lecture	9.00-11.10 (9) Lectures on Electro-metallurgy	9.00-12.30 (17) New Biol. Agents Symposium Joint with COMO	9.00-12.30 (2) Metals in Org. Chem. Symposium Joint with COMO	FREE	9.00-12.30 A(15) 10.30-12.10 B(16) 2.00-3.40 (15) Lectures	8.45-10.10 (13) Energy 10.30-12.30 (13) Solids 2.00-4.30 (13) Surface Chemistry & Physics
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WORKSHOPS AND VISITS

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