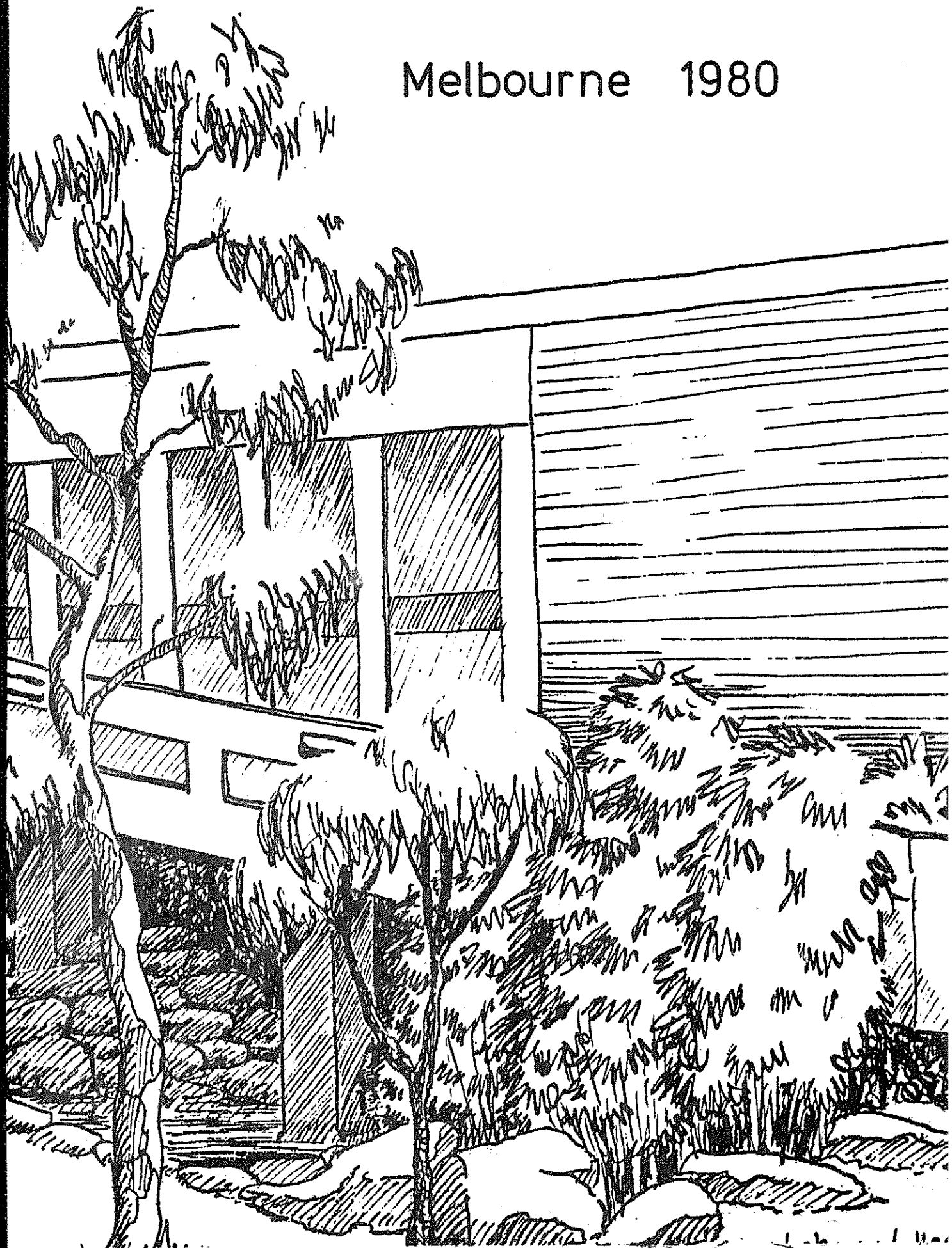


AIP 4<sup>th</sup> National Congress

Melbourne 1980



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ORGANIZING COMMITTEE

PROFESSOR B.H.J. McKELLAR	(Chairman)
DR. R. J. FLEMING	(Honorary Secretary)
DR. A.E. SPARGO	(Honorary Treasurer)
DR. R.C.G. LECKEY	
PROFESSOR T.F. SMITH	

ACKNOWLEDGEMENTS

The Organizing Committee has received assistance from many organizations and individuals. We wish to record our thanks to the following:

The Government of Victoria

The University of Melbourne

Monash University

La Trobe University

The Ian Potter Foundation

Ansett Airlines of Australia

Editor and Staff of The Australian Physicist

The Commonwealth Banking Corporation

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Mrs. Bronwyn Halls

## GENERAL INFORMATION

### WELCOME

The Organising Committee warmly welcomes all delegates to the Fourth National Congress of the Australian Institute of Physics. We have endeavoured to put together a programme of invited and contributed papers which will be of interest to all physicists and which covers a significant cross section of physics in Australia.

### THE UNIVERSITY OF MELBOURNE

The Congress will be held at the University of Melbourne, which was established in 1853 and is the second oldest University in Australia. The campus is conveniently located a short tram ride, or a slightly longer (in t not x) walk, from downtown Melbourne, and two blocks from the famous Lygon Street shopping centre of Carlton. A pamphlet is provided in your Congress Bag which includes a map of campus and a description of some points of interest.

The Congress sessions, with two exceptions, will be in the lecture theatre block of the new Physics building, which was first occupied in 1973, being completed just before capital works in the Universities came to a halt. Most of the lectures will be in the Laby Theatre, and poster sessions, the equipment exhibition and morning and afternoon refreshments will be provided in the foyers of the lecture theatres. Tutorial Rooms in the main Physics building will be available for ad hoc discussion groups.

### OPENING SESSION

Delegates will be welcomed to the University by Professor J.R. Poynter, the Deputy Vice Chancellor (Research) and an opening

address will be delivered by the Chairman of ASTEC, Professor Sir Geoffery Badger, at the opening session. This opening session will be at 11 a.m. Monday, 25th August in the Public Lecture Theatre, Old Arts Building.

#### RECEPTION.

The Premier and Government of Victoria will welcome delegates at a reception in the Premier's Department Reception Rooms, 1 Treasury Place, at 5.45 p.m. on Monday, 25th August. The most convenient way to travel from the University is by tram down Swanston Street to Collins Street, and by tram (or foot) up Collins Street to Spring Street. Treasury Place is almost a continuation of Collins Street on the other side of Spring Street, alongside the Treasury Building.

You will find an invitation to the Reception in your Congress Folder. Please bring it as it serves as an entree card also.

The Organising Committee wishes to thank the Premier and Government of Victoria for their hospitality.

#### LABY CENTENARY LECTURE

This year is the centenary of the birth of Professor T.H. Laby, Professor of Natural Philosophy at the University of Melbourne from 1915 to 1944. During the time that Professor Laby presided over the Department of Natural Philosophy, it produced an astonishing number of graduates who subsequently achieved renown in science here and abroad. Laby and his department also achieved fame through their precision measurements, most notably of the mechanical equivalent of heat.

To commemorate this occasion the Congress Organising Committee, and the University of Melbourne, have arranged that a special public lecture be given. Professor Sir Harrie Massey, FRS, himself one of Laby's distinguished students, will deliver the Laby Centenary Lecture on Tuesday, 26th August at 8 p.m. This lecture will be in the Lyle Theatre, in the Redmond Barry building. We invite you to attend this lecture, and to partake of refreshments after the lecture in the Physics Lecture Theatre Foyers.

On display in the School of Physics Museum will be apparatus, scientific papers and correspondence from the Laby era. This exhibit will remain in place during the Congress.

The Congress Organising Committee and the School of Physics are grateful to the Potter Foundation for their financial support of the Physics Museum and of Sir Harrie Massey's visit.

#### CONGRESS DINNER

The Congress Dinner will be held in Ormond College on the night of Thursday, 28th August at 7.30 p.m. Dinner tickets at a cost of \$15 have been included in the Congress Folder for those who have requested them. Additional tickets are on sale at the Registration Desk on Monday only. The \$15 includes the cost of wine, and mediaeval dinner music.

### COSMIC RAY WORKSHOP

The congress programme includes a cosmic ray workshop, organised by Professor John Prescott. This will be run as a parallel session on Tuesday 26th August in the Hercus Theatre.

### SOLAR-TERRESTRIAL PHYSICS DISCUSSION MEETING

In conjunction with the Congress, a discussion meeting on Solar-Terrestrial Physics in Australia will be held at La Trobe University on 29-30 August. Further information on the program and registration (\$5) may be obtained from Professor K. D. Cole, Division of Theoretical and Space Physics, La Trobe University, Bundoora, Victoria, 3083, telephone 478 3122, extension 2735.

### EATING OUT IN CARLTON

Melbourne University is fortunate in having so many nearby restaurants and coffee houses, which cater to a wide variety of tastes and pockets. In the more expensive bracket we can recommend Le Petit Vatel (in the Lemon Tree Hotel, cnr Grattan and Rathdowne Streets) for French, Restaurante Federici in Grattan Street (just west of Swanston Street) for Italian, Jamaica House (Lygon Street) for Jamaican, including Curries, Phantom India (Swanston Street) for Indian, and August Moon (Lygon Street) for Chinese. All except Le Petit Vatel are BYO - King and Godfree on the corner of Lygon and Faraday Streets are an excellent licensed grocer. Less expensively we suggest Il Bacio (Lygon Street, BYO), Copperwood (Lygon Street, fully licensed - the outer section, inside is more expensive) and Pappa Ginos (Lygon Street - pizza BYO). The Clyde Hotel (Elgin Street, at the end of the bridge from Physics) serves lunches and dinners - reasonable food at reasonable prices.



Genevieve (Faraday Street) is a favourite student coffee house - restaurant. The University Union, whose new kitchens extend over the old cyclotron site serves perhaps better than standard student union fare, and also houses a bistro (BYO) which has better class food and grills, a coffee lounge, a sandwich shop and a milk bar. There is a good sandwich shop opposite the Physics buildings on the corner of Swanston Street and Elgin Street. And the Twins hamburger shop in Lygon Street near Elgin Street is famous for its souvlaki.

If none of these tempt you, or you manage to try them all, there are many more restaurants in the Carlton area, within easy walking distance of campus. Bon Apetit!

*Bruce H J M<sup>c</sup>Kellar*

B.J.H. MCKELLAR

Chairman  
Organizing Committee

TELEPHONE  
345 1844

TELEGRAMS  
UNIMELB PARKVILLE

8.



# University of Melbourne

SCHOOL OF PHYSICS

*Parkville, Victoria 3052*

WELCOME TO THE CONGRESS!

My colleagues and I are delighted to be the hosts of the 4th National Congress of the Australian Institute of Physics and would like to extend a warm welcome to all visitors to the School of Physics of the University of Melbourne.

We will gladly take you on a guided tour of our research facilities on

WEDNESDAY, 27TH AUGUST

in the afternoon, to show you:

- \*The accelerators and nuclear laboratories
- \*The X-ray and electron diffraction laboratories
- \*The High Energy Physics research areas.

Please indicate your interest at the registration desk as soon as possible so that we can schedule the visits.

We hope you have an enjoyable and profitable time at the Congress.

A handwritten signature in cursive script that reads 'E. G. Muirhead'.

(E. G. Muirhead)  
Chairman, School of Physics

## DISPLAY OF SCIENTIFIC EQUIPMENT

The following companies will be exhibiting equipment:

- \* SELBYS SCIENTIFIC LTD.
- \* SCIENTIFIC DEVICES AUSTRALIA PTY. LTD.
- \* QUENTRON OPTICS PTY.LTD.
  - LASERS & OPTICAL ACCESSORIES
  - NUCLEAR DETECTORS & INSTRUMENTATION
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- \* GEC AUSTRALIA LIMITED - AUTOMATION AND CONTROL
- \* VARIAN TECHTRON PTY.LTD.

SESSION PROGRAMMEMONDAY

- 9.00 - 11.00 Registration
- 11.00 Opening Session, Public Lecture Theatre.  
Professor J.R. Poynter, Deputy Vice-Chancellor of  
the University of Melbourne.
- Professor Sir Geoffrey Badger, Chairman of ASTEC -  
*The role of Government in Australian Science*

12.30 - 1.45 Lunch

ENERGY RESOURCES

- 1.45 - 2.30 A1 Invited Lecture  
*The Australian Energy Challenge* - C.N. Watson-Munro
- 2.30 - 2.45 A2 *The New Significance of Agricultural Oils as Fuels  
for Compression - Ignition Engines* - J.F. Ward
- 2.45 - 3.00 A3 *Wind Energy Resource Survey of New Zealand*  
- P.J. Edwards
- 3.00 - 3.15 A4 *Photoelectrochemical Solar Power* - D. Haneman and  
D.J. Miller
- 3.15 - 3.45 Afternoon Tea
- 3.45 - 4.30 A5 Invited Lecture  
*The Nuclear Energy Option* - S.T. Butler
- 4.30 - 4.45 A6 *High Efficiency MIS Solar Cells on Low Quality Sub-  
strates* - P. Hart, A. Blakers, M. Green & M. Willison
- 4.15 - 5.00 A7 *Solar Selective Black Cobalt: Preparation, Structure  
and Thermal Stability* - G.B. Smith & A. Ignatiev
- 5.00 - 5.15 A8 *Factors Affecting the Weatherability of Solar Pool  
Covers* - J.L.A. Francey and P. Golding
- 5.45 Congress Reception,  
Melbourne Room, 1 Treasury Place.  
Hosted by the Premier of Victoria,  
the Honourable R.J. Hamer, E.D., M.P.

TUESDAYPHYSICS OF CONDENSED MATTER

- 9.00 - 9.45 B1 Invited Lecture  
*Phonons, Lattice Instabilities and Superconductivity* -  
H.G. Smith

- 9.45 - 10.00 B2 *Thermal Expansion Measurements of Al<sub>5</sub> Superconductors* - T.R. Finlayson, E.E. Gibbs and T.F. Smith
- 10.00 - 10.15 B3 *Thermal Expansion of Vitreous As<sub>2</sub>S<sub>3</sub> at Low Temperatures* - G.K. White, G.J. Morgan and J.G. Collins
- 10.15 - 10.30 B4 *Migration of Defects in Alkali Halides* - J.S. Cook and J.S. Dryden
- 10.30 - 11.00 Morning Tea
- 11.00 - 11.45 B5 Invited Lecture  
*Magnetic Order in Spatially - Disordered Systems* - T.J. Hicks
- 11.45 - 12.00 B6 *AC and DC Specific Heat Studies of Tb and Dy* - T.J. McKenna, K.D. Jayasuriga, S.J. Campbell, D.H. Chaplin, E.S.R. Gopal and G.V. Wilson
- 12.00 - 12.15 B7 *Spin Dependent Resonance at Si Surfaces*-G. Mendz and D. Haneman
- 12.15 - 12.30 B8 *Thermal Conductivity of Thin Amorphous Films* - H.J. Goldsmid and M.M. Kaila
- 12.30 - 2.00 Lunch

ATMOSPHERIC AND ENVIRONMENTAL PHYSICS

- 2.00 - 2.45 C1 Invited Lecture  
*Non-linear Irreversible Thermodynamics and the Prediction of Climate Change* - G.W. Paltridge
- 2.45 - 3.00 C2 *Man's Impact on Climate* - A.J. Dyer
- 3.00 - 3.15 C3 *Airborne Particles and Their Possible Influence on Climate* - J.L. Gras
- 3.15 - 3.30 C4 *Weather modification in Australia* - W.D. King
- 3.30 - 4.00 Afternoon Tea
- 4.00 - 4.45 C5 Invited Lecture  
*Numerical Modelling of Climate* - B.G. Hunt
- 4.45 - 5.00 C6 *Simulation of Aspects of Southern Hemisphere Climate with a General Circulation Model* - I.H. Simmonds
- 5.00 - 5.15 C7 *Ocean-Atmosphere Heat Exchange* - P.J. Webster
- 5.15 - 5.30 C8 *Numerical Modelling of Ice-Age Changes* - W.F. Budd

POSTERS (on display all day)

- BP1 *A Mössbauer Study of Amorphous FeSi alloys* - C. Bansal, S.J. Campbell, A.M. Stewart and R.B. Turkentine

- BP2 *Thermal Modulation Studies of the Critical Magnetic Susceptibility of Gadolinium* - G.J.H. Wantenaar, S.J. Campbell, D.H. Chaplin, T.J. McKenna and G.V.H. Wilson
- BP3 *The Electronic Properties of Random Binary Alloys in the KKR-CPA* - R.N. Lindsay
- BP4 Abstract withdrawn
- BP5 *Solvation Forces in Simple Dense Fluids* - W. van Meegen and I.H. Snook
- BP6 *High Resolution Shear Viscosity Measurements in a Binary Liquid Critical System* - A.F. Collings and N. Bajenov
- BP7 *Electronic Structure of Hydrogen Impurities in Aluminium* - B. Craig
- BP8 *Performance of the AAEC High Resolution Neutron Diffractometer* - C.J. Howard, R.L. Davis, T.M. Sabine and J.C. Taylor
- BP9 *Research in Solid State Physics - One Thing leads to Another!* - P.E. Clark, R. Cywinski and G.L. Whittle
- BP10 *Discrete Ion Effects on Metallic Surface Properties* - J.F. Dobson and J.H. Rose
- BP11 *Uranium - An Electronic Mystery* - C.A. Cornelius and T.F. Smith
- CP1 *Crystal Size and Recrystallization in Accreted Ice* - C.J. McCappin and W.C. Macklin
- CP2 *Astronomical Measurement of the Composition of the Terrestrial Atmosphere* - P.J. Edwards

COSMIC RAY WORKSHOP

- 9.00 - 10.30 3 Review Papers (25 minutes each)
- D1 *Cosmic Rays of Very High Energy* - M.M. Winn
- D2 *Cosmic Rays in Interplanetary Space* - A.G. Fenton
- D3 *Cosmic Ray Composition* - R.M. Clay
- 10.30 - 11.00 Morning Tea
- 11.00 - 11.40 D4 Invited Lecture  
*Some Problems in the Interpretation of Cosmic Ray Phenomena* - A.M. Hillas

- 11.40 - 12.30 5 Contributed Papers (10 minutes each)
- D5 *Observation of the Shape of Atmospheric Cerenkov Pulses from EAS* - D.F. Liebing, A.G. Gregory, G.J. Thornton and R.W. Clay
- D6 *Lateral Distribution of Atmospheric Cerenkov Radiation from EAS* - J.D. Kuhlmann
- D7 *The Elongation Rate of EAS Derived from the Time Structure of the Atmospheric Cerenkov Light Pulse* - G.J. Thornton
- D8 *A New Experiment for Measuring the Flux of High Energy Iron Nuclei in Cosmic Rays* - R.K. Sood
- D9 *Distribution of Arrival Times in Cosmic Ray Showers* - E. Rawinski
- 12.30 - 2.00 Lunch
- 2.00 - 3.15 3 Review Papers (25 minutes each)
- D10 *Galactic Particle Astronomy* - R.M. Jacklyn
- D11 *X-ray Astronomy* - K.B. Fenton
- D12 *Gamma Ray Astronomy - Past and Future* - B.V. Denehy
- 3.15 - 3.45 Afternoon Tea
- 3.45 - 5.30 9 Contributed Papers (10 minutes each)
- D13 *Density Spectra in EAS* - J.B.T. McCaughan
- D14 *Array Density Spectrum of EAS* - R.W. Clay and P.R. Gerhardy
- D15 *Techniques for Directional Analysis of EAS* - J. Ulrichs
- D16 *Atmospheric Effects on High Energy Cosmic Rays* - P.R.A. Lyons
- D17 *Detection Systems for High Energy Cosmic Rays Underground* - C.W. Wilson
- D18 *Long Term Cosmic Ray Intensity Variations* - J.R. Prescott, B.W. Smith and M.F. Barbetti
- D19 *EOSCOR - A Long Exposure Balloon-Borne Solar Neutron Detector* - B.V. Denehy, O.B. Mace, G.M. Frye, R. Koga and S.M. Schindler
- D20 *A Simple Approach to Calculating Pulse Profiles for Atmospheric Cerenkov Radiation from EAS* - A.G. Gregory
- D21 *The Buckland Park Air Shower Array* - J.R. Patterson and P.R. Gerhardy

The following papers will be combined and presented at the end of the afternoon session as time permits:

- D22 *Water Cerenkov Detectors at Buckland Park* - R.W. Clay, R. Cameron, R.A. Cassidy and N.A. Spooner
- D23 *The Ungated Pulse Height Spectrum of Some Cosmic Ray Detectors* - R.W. Clay and M.A. McDonough
- D24 *The Event Spacing Distribution of EAS* - R.W. Clay, B.R. Dawson and P.R. Gerhardy
- D25 *The Practical Aspects of Constructing Multiwire Proportional Chambers for Use as Cosmic Ray Detectors* - L. Horton

WEDNESDAY

NUCLEAR AND PARTICLE PHYSICS

- 9.00 - 9.30  
E1 Invited Lecture  
*The Lost Neutrinos of the Sun* - L.S. Peak
- 9.30 - 10.00  
E2 Invited Lecture  
*Bosons and Groups in Nuclear Physics* - I. Morrison
- 10.00 - 10.15  
E3 *Dynamical Symmetry Breaking in the Simple Harmonic Oscillator* - P.D. Jarvis
- 10.15 - 10.30  
E4 *Meson Exchange and Photodisintegration of the Deuteron* - W.S. Woolcock
- 10.30 - 11.00  
Morning Tea
- 11.00 - 11.45  
E5 Invited Lecture  
*Particle Theory Today* - H.R. Quinn
- 11.45 - 12.00  
E6 *Comparison of Fission Characteristics for Spontaneous Fission and Thermal Neutron Induced Fission of some Plutonium Isotopes* - H. Abou Yehia, J. Boldeman, Y. Pranal and J. Trochon
- 12.00 - 12.15  
E7 *Inelastic Proton Scattering from  ${}^6\text{Li}$  at 135 MeV* - R.S. Henderson, B.M. Spicer, G.G. Shute, V.C. Officer, D.W. Devins, D.L. Friesel and W.P. Jones
- 12.15 - 12.30  
E8 *Velocity Dependence of Enhanced Dynamic Hyperfine Magnetic Fields* - A.E. Stuchbery, C.G. Ryan, H.H. Bolotin and S.H. Sie
- 12.30  
Lunch

POSTERS (on display 9.00 to 12.30)

- EPI *A Phenomenological Model for Cabibbo Favoured Charmed Meson Decays into Three Pseudoscalars:  $P_c \rightarrow PPP$*  - R.D.C. Miller and B.J.H. McKellar



- EP2 *Inelastic Scattering of 135 MeV Protons from  $^{13}\text{C}$*  -  
S.F. Collins, G.G. Shute, B.M. Spicer, V.C. Officer,  
D.W. Devins, D.L. Friesel and W.P. Jones
- EP3 *Excitation of the 9.50 MeV ( $9/2^+$ ) State of  $^{13}\text{C}$  in  
Intermediate Scattering Reactions* - L. Rikus,  
S.F. Collins, H.A. Amos, B.M. Spicer, G.G. Shute,  
D.W. Devins, D.L. Friesel and W.P. Jones
- EP4 *Electromagnetic Decay Widths for  $L=1$   $J^{PC}=1^{--}$  T-Baryonia*  
- R.G. Ellis, B.H.J. McKellar, G.C. Joshi and  
R. Anderson
- EP5 *Background Potential Resonance Effects in Low Energy  
Elastic Scattering of Neutrons from  $^{12}\text{C}$*  - L. Rikus  
and K. Amos
- EP6 *Oscillations of Massless Neutrinos as a Refractive  
Phenomenon* - G.I. Opat
- EP7 *Neutron Optical Tests of Nonlinear Wave Mechanics* -  
A.G. Klein
- EP8 *Neutron Beam Imaging and Focussing with Fresnel Zone  
Plates* - P. Kearney, A.G. Klein, G.I. Opat and  
R. Gähler
- EP9 Abstract withdrawn
- EP10 *Structure of Multiparticles in Quark Jets* - C. Chang  
and S. Lo

THURSDAYAPPLIED PHYSICS

- 9.00 - 9.45  
F1 Invited Paper  
*Applied Physics or Physics Applied?*-J.P. Wild
- 9.45 - 10.00  
F2 *A Critical Re-examination of Ionospheric Radio Commu-  
nications for Reliable, Secure and High-Rate Digital  
Data* - J.F. Ward
- F3 Abstract withdrawn
- 10.00 - 10.15  
F4 *IUVSTA and Australian Surface Science Research* -  
J.L. Robins
- 10.30 - 11.00  
Morning Tea
- 11.00 - 11.45  
F5 Invited Lecture  
*Physics - The Tools of our Trade* - Sir James Menter
- 11.45 - 12.00  
F6 *Applications of Nuclear Techniques* - J.R. Bird
- 12.00 - 12.15  
F7 *Fleece Wool Cutting Techniques: The Physics of  
Alternative Methods* - R.D. Jones and P.R.W. Hudson

- 12.15 - 12.30 F8 *Non-Destructive Testing of Industrial Steel Cord  
Conveyor Belts Using Signature Analysis* - A. Harrison
- 12.30 - 2.00 Lunch
- RADIOPHYSICS, ASTROPHYSICS AND GRAVITATION
- 2.00 - 2.45 G1 Invited Lecture  
*Solar Oscillations* - G.R. Isaak
- 2.45 - 3.00 G2 *Saturn 1980: Predictions on the Eve of the Voyager  
I Encounter* - A.J.R. Prentice
- 3.00 - 3.30 G3 *The Collapse of a Rotating White Dwarf and Its Evolution  
to a Neutron Star* - J.J. Monaghan and R.A. Gingold
- 3.30 - 4.00 Afternoon Tea
- 4.00 - 4.45 G4 Invited Lecture  
*Status of Gravitational Radiation Experiments* - D. Blair
- 4.45 - 5.00 G5 *The Structure of Jets Emerging from Active Galaxies* -  
G.V. Bicknell and R.N. Henriksen
- 5.00 - 5.15 G6 *Solitons in General Relativity* - E.D. Fackerell and  
P.C. Harmsworth
- 5.15 - 5.30 G7 *Was the Universe Ever Flat?* - N.E. Frankel
- POSTERS (on display all day)
- FP1 *Amorphous Phase Production in Ion Implanted Single  
Crystal Iron* - K.T. Short and J.S. Williams.
- FP2 *Oxygen Depth Profiles Using a Proton Beam* - J.R. Bird  
and R. Clapp
- FP3 Abstract withdrawn
- FP4 *Long Wavelength Optical Response in Fine Particle  
Aggregates and Cermets* - G.B. Smith and N. Sajkewycz
- FP5 *Characterisation of Iron Mineralogy by Mössbauer  
Spectroscopy* - S.A. Fysh and P.E. Clark
- FP6 *Development, Properties and Applications of the SIRO<sub>2</sub>  
Oxygen Sensor* - M.J. Bannister, W.G. Garrett,  
N.A. McKinnon, R.H. Stringer and H.S. Kanost
- FP7 *Progress Towards 'Tough' Ceramics* - R.H.J. Hannink  
and M.V. Swain
- FP8 *Determination of the Kinetic Order of Thermoluminescence  
in the Presence of an Activation Energy Distribution* -  
J. Hagekyriakou and R.J. Fleming
- 7.30 Congress Dinner - Ormond College

- 9.00 - 9.45 H1 Invited Lecture  
*Angular Correlations in Atomic Physics* - J.F. Williams
- 9.45 - 10.00 H2 *Valence Band Structures for NiTe<sub>2</sub>, PdTe<sub>2</sub> and PtTe<sub>2</sub> Determined by Angle-resolved UPS* - J. Liesegang, P. Orders, J.G. Jenkin, J.D. Riley and R.C.G. Leckey
- 10.00 - 10.15 H3 *Industrial Applications of Auger Electron Spectroscopy* - P.J.K. Paterson
- 10.15 - 10.30 H4 *(e-2e) Spectroscopy of C<sub>6</sub>H<sub>6</sub> : Valence Electron Momentum Distributions and Binding Energies* - I. Fuss and E. Weigold.
- 10.30 - 11.00 Morning Tea
- 11.00 - 11.45 H5 Invited Lecture  
*Ion Scattering Spectroscopy and the Study of Surfaces* - R.J. MacDonald
- 11.45 - 12.00 H6 *The Microstructure of Solar Selective Black Chrome Using Ion and Electron Spectroscopy* - G.B. Smith, G. Zajac and A. Ignatiev
- 12.00 - 12.15 H7 *Proton Decoration of Halite Crystals* - J.R. Bird and R.W.T. Wilkins
- 12.15 - 12.30 H8 *The Inclusion of the Spin-Orbit Interaction into the Electronic Structure of Dilute Transitional Impurities in Transition Metals* - P.V. Smith
- 12.30 Lunch

POSTERS ( on display 9.00 to 12.30)

- HP1 *Electron Energy Loss Spectroscopy* - N. Avery
- HP2 *Application of Binary Encounter Approach to Charge Exchange and Single Impact Ionization Cross-Sections Calculation for Ion-Atom Collisions* - C.K. Tan and A.R. Lee
- HP3 *The Development of Angle Resolved Photoelectron Spectroscopy - an Ultra-Violet Study of 1930* - J. Jenkin
- HP4 *Quantitative Auger Electron Spectroscopy Analysis of Fe-Cr and Fe-Ni-Cr Alloys* - W.L.N. Matthews, P.J.K. Paterson, H.K. Wagenfeld and P.W. Wright
- HP5 *Sputtering Effects Incurred During Depth Profiling Metal Oxides* - V.B. Hill and P.J.K. Paterson
- HP6 *An Auger Electron Spectroscopy Study of Intergranular Fracture in Low Alloy Steels* - W.R. Broughton, P.J.K. Paterson and W. Pollock
- HP7 *Determination of the Shape of Auger Electron Features by Direct Digitisation of Secondary Electron Spectra* - R.H. Roberts and M. O'Neill
- HP8 *(e-2e) Spectroscopy of NO: Valence Electron Momentum Distributions and Binding Energies* - E. Weigold, I. Fuss and C.E. Brion