



*Dr Neil Manson -
Associate Director (Students)*

Introduction

The School has a significant commitment to postgraduate training. In 2000 we had a total of 73 PhD students, including continuing students and those completing their theses. A total of 14 postgraduate students commenced their program of study during the year, 4 of those being women.

The School, in co-operation with the ANU Graduate School, organised various activities aimed at assisting the postgraduate students and broadening their education. An introductory seminar for new students was given and various tours of the School facilities and the Department of Physics, The Faculties, were conducted. The students also met at several social functions.

The winner of the 2000 Director's Award, for the most outstanding published research paper by a PhD student over the last year, was present at Founder's Day on 5th October: Nobuo Maeda, Department of Applied Mathematics, for his paper entitled "Surface Supercooling and Stability of n-Alkane Films".

The Graduate Program in Physical Sciences ran a seminar competition for the seventh year. Eleven talks were presented by postgraduates from this School and The Faculties, with the sessions chaired by the Graduate Convenor. The winners were announced at the conclusions of the program and the prizes were presented at Founder's Day.

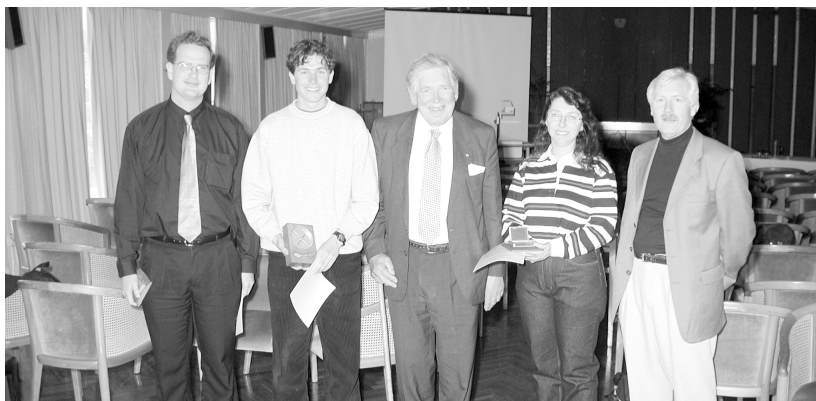
The winner of the John Carver Prize for best talk at the Graduate Student Seminar Series was: Ben Corry, Department of Theoretical Physics, for his talk entitled "Choosing Wisely: Permeation and Selectivity in Calcium Channels".

Winner of the Director's Prize was: Annette Berriman, Department of Nuclear Physics, "To Fuse or Not to Fuse: Niels Bohr vs. The Heavies"

Winner of the Dean's Prize was: Sean O'Byrne, Physics, The Faculties, "The Hypersonic Boundary Layer – Applying New Methods to a Familiar Problem".

The School also makes a significant contribution to undergraduate education by offering a broader range of courses to enrich the undergraduate teaching program. These courses are offered in The Faculties, in the Physics, Engineering and Chemistry Departments. Also, to provide wider opportunities for ANU undergraduates at research level, the School has in recent years offered honours projects and many undergraduates have taken up this opportunity. The School supports this program by offering honours year scholarships of which there were five in the current year. It was also pleasing to note that 3 students who held scholarships in 1999 have continued and enrolled as PhD students in the School in 2000.

An increasing number of international undergraduate and postgraduate scholars, 41 in year 2000, spent 3 months to 1 year in various departments for the purpose of training and research.



Professor John Carver and Professor Hans Bachor with Prize winners, Sean O'Byrne, Ben Corry and Annette Berriman

Degrees Awarded and Destinations

The following MSc and PhD degrees were awarded by Council during 2000 (those entitled "Dr" have now had their degrees conferred):

Atomic and Molecular Physics Laboratories

Dr Weijian Lu (jointly with LPC)

Thesis: *Laser Manipulation of a Metastable Helium Beam for Atom Lithography*

Currently: Australian Nuclear Science and Technology Organisation

Mr Agus Purwanto

MSc Thesis: *Determination of the Two-channel Scattering Amplitudes using Unitarity*

Currently: Jurusan Fisika, FPMIPA, Universitas Negeri Yogyakarta, Indonesia

Electronic Materials Engineering

Dr Kidane Belay

Thesis: *The Influence of Ion Beam-induced Non-stoichiometry on the Solid-phase Epitaxial Growth of Amorphised GaAs*

Currently: Canberra

Ms Shabih Fatima

Thesis: *Electrically Active Defects in Ion Implanted Si*

Currently: New Zealand

Dr Wah Chung Wong

Thesis: *The Fabrication of GeSi/Si Heterostructures by Ion Implantation and Solid Phase Epitaxy*

Currently: Pacific Solar, Sydney

Laser Physics Centre

Dr Max Bott

Thesis: *Quantum Mechanical Interference in Sodium*

Currently: Computing consultant

Dr Weijian Lu (jointly with AMPL)

Thesis: *Laser Manipulation of a Metastable Helium Beam for Atom Lithography*

Currently: Australian Nuclear Science and Technology Organisation

Mr Geoff Pryde

Thesis: *Ultrahigh Resolution Spectroscopic Studies of Optical Dephasing in Solids*

Currently: Montana State University, USA

Plasma Research Laboratory

Dr Alex Degeling

Thesis: *Plasma Production by Helicon Waves*

Currently: CRPP, Lausanne, Switzerland

Theoretical Physics

Dr Paul Cuthbert

Thesis: *Ballooning Instabilities in Three-dimensional Toroidal Plasmas*

Currently: Department of Defence, Canberra

Dr Matthew Hoyles

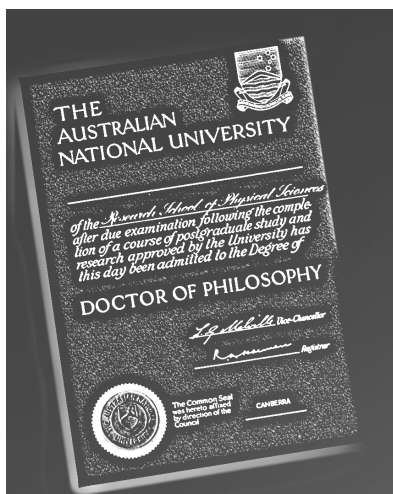
Thesis: *Computer Simulation of Biological Ion Channels*

Currently: ARC-PDF, Chemistry, Faculties, ANU

Dr Michael Walker

Thesis: *Chiral Symmetry in Supersymmetric QED3 and QED4*

Currently: Seoul National University, Korea





Source of Funding

ADCOS Australian Development Co-operation Scholarship
 ADFA Australian Defence Force Academy
 ANUPS Australian National University Postgraduate Scholarship
 ANUPTS Australian National University Postgraduate and Tuition Fee Scholarship
 ANUTECH also supported by ANUTECH
 APA Australian Postgraduate Award
 APA(I) Australian Postgraduate Award (Industry)
 ATERB Australian Telecommunications and Electronics Research Board Award
 CRC Cooperative Research Centre
 CSIRO Commonwealth Scientific & Industrial Research Organisation
 CSFP Commonwealth Scholarship and Fellowship Plan
 ERDC Energy Research and Development Corporation
 GIRD Generic Industrial Research and Development
 GSS Graduate School Scholarship
 IPRS International Postgraduate Research Scholarship
 RMIT Royal Melbourne Institute of Technology

The lists include students who were not enrolled for the full year, or who had completed their course but not yet submitted their thesis.

Applied Mathematics

Mr Ira Cooke, BSc JCU APA
 Mr Markus Kohonen, BSc APA
 Mr Jevon Longdell, BSc Waikato, MSc Auckland ANUPS
 Mr Nobuo Maeda, BEng Tohoku, Japan, MSc JAIST, Japan ANUPTS
 Mr Ian Miller, BSc APA
 Ms Ying Qiao, BSc Sichuan, China, MSc Ancona, Italy IPRS/ANUPS
 Mr Marek Schmidt ANUPTS (jointly with EME)

Atomic and Molecular Physics Laboratories

Mr Mohammad Arifin, BSc IKIP Bandung, Indonesian Govt
 Mr Massimiliano Colla MSc Pisa IPRS/ANUPS (jointly with LPC)
 Mr Robert G. Dall, BSc CQld, APA (jointly with LPC)
 Mr Andrew M. Elliott, BSc Woll ANUPS
 Ms Vanessa Leung, BSc Massey ANUPS (jointly with LPC)
 Mr Weijian Lu, BSc NSW (jointly with LPC) ANUPS
 Mr Edward H. Roberts, BE BSc NSW, MBA Deak FIE(Aust) APA
 Mr James A. Swansson, BA MSc Melb APA (jointly with LPC)
 Ms Linda J. Uhlmann, B.App.Sci CQld, APA
 Ms Kylie Waring, BSc Mon APA (jointly with LPC)

Electronic Materials Engineering

Ms Jodie Bradby, BApSc RMIT APA(I)
 Ms Christine Carmody, BSc UNSW APA CSIRO
 Ms Stephanie Cheylan, BSc MSc Grenoble ANUPS/ANUPTS (jointly with LPC)
 Mr Michael Cohen, BEng UQ APA

Mr Sanju Deenapanray, BEng ANU MSc Pretoria IPRS/ANU
 Ms Annette Dowd, BSc UNSW APA
 Mrs Shabih Fatima, BSc MSc Karachi ADCOS
 Mrs Lan Fu, MSc USTC ANUPS/IPRS
 Mr Michael Gao, BE, ME Northeastern University, PRC IPRS/ANUPS
 Mr Chris Glover, BSc Newcastle ANUPS
 Ms Jillian Hay, BE Hons, Canterbury, NZ ANUPS
 Mr Craig Johnson, BEng ANUPS/APA(I)
 Mr Sergei Kucheyev, MPh StPSTU IPRS/ANUPS
 Ms Penelope Lever, BE Hons, Canterbury, NZ ANUPS
 Ms Charlene Lobo, BSc UWA APA
 Mr Marek Schmidt ANUPTS (jointly with AM)
 Ms Tessica Weijers BSc, BAppSc QUT APA (jointly with NP)
 Mr Xianfang Zhu, BEng MSc NE U, PRC ANUPS/IPRS

Laser Physics Centre

Ms Stephanie Cheylan, MSc, BSc Grenoble ANUPTS/ANUPS (jointly with EME)
 Mr Max Colla, MSc Pisa IPRS/ANUPS (jointly with AMPL)
 Mr Roger Dall, BSc APA (jointly with AMPL)
 Mr Tim Dyke, BSc Monash APA
 Mr Andrew Greentree, BSc Adelaide ANUPS
 Mr Vesselin Kolev, Eng-Phys Bulgaria ANUPS
 Ms Vanessa Leung, BSc Massey ANUPS (jointly with AMPL)
 Mr Weijian Lu, BSc NSW ANUPS (jointly with AMPL)
 Mr Glen McCarthy, BSc UNSW (part-time scholarship)
 Mr Darryl Scott, BSc Wollongong ANUPS
 Mr James Swansson, BA BSc Melbourne APA (jointly with AMPL)
 Ms Snjezana Tomljenovic-Hanic, BSc Belgrade APA(I) (jointly with OSC)
 Ms Kylie Waring, BSc Monash APA (jointly with AMPL)
 Ms Elena Wilson, BSc Vitebsk State ANUPS
 Mr Andrew Windsor, BSc Adelaide APA

Nuclear Physics

Ms Annette Berriman, BSc, Grad Dip APA
 Ms Rachel Butt, BSc APA
 Ms Jodie Evans, BSc ANUPS (jointly with RSES)
 Ms Judith Hazel, BSc, DipSci, MSc ANUPS (from 25 February)
 Mr Tom McGoram, BSc, MSc Auckland APA
 Mr Martyn Robinson, BSc Surrey ANUPS
 Ms Tessica Weijers, BSc APA (jointly with EME)

Optical Sciences Centre

Mr Tristram Alexander, BSc Darwin APA
 Ms Samantha Ashby, BSc Sydney APA(I)/ADC Telecommunications Australia Pty Ltd
 Mr Keith Gaff, BSc Mon APA(I)/ADC Telecommunications Australia Pty Ltd (jointly with PRL)
 Ms Ruth Jarvis, BE BSc APA(I)/Siemens Ltd
 Mr Nick Robins, BSc ANUPS
 Mr Andrei Sukhorukov, BSc Mosc IPRS/ANUPS
 Ms Snjezana Tomljenovic-Hanic, BSc Belgrade APA(I)/ADC Telecommunications Australia Pty Ltd (jointly with LPC)

Plasma Research Laboratory

Mr Scott Collis, BSc UNSW ANUPS
 Mr Keith Gaff, BSc Monash APA(I)/AOFR Pty Ltd (jointly with OSC)
 Mr Fenton Glass, BSc Qld ANUPS
 Ms Sarah Hatch, BSc ENYA ANUPS
 Mr Rhys Hawkins, BE BIT ANUPS
 Ms Sally Lloyd, BSc Murdoch APA (jointly with TP)
 Mr Liviu Lungu, MSc Polytechnic University, Bucharest SPIRT
 Mr Clive Michael, BSc APA
 Mr Horst Punzmann, BSc Polytech Regensburg ANUPS
 Mr Wayne Solomon, BSc Qld APA
 Mr John Wach, BAppSc BCAE, GradDipElect CCAE (self-funded)

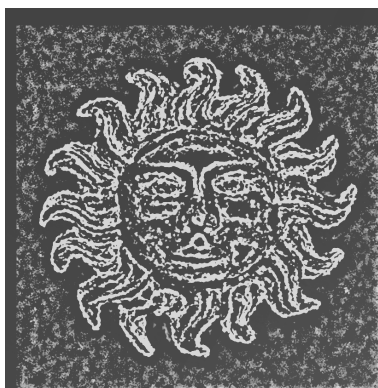
Theoretical Physics

Mr Yung-Kai Chan, BSc (self-funded)
 Mr Ben Corry, BSc APA
 Mr Geoffery Ericksson, BSc Qld ANUPS
 Mr Anthony Hibberd, BSc Qld APA
 Mr Alexei Khorev, DipPhys Mosc PTI IPRS/ANUPS
 Ms Sally Lloyd, BSc Murdoch APA (jointly with PRL)
 Mr Ian McCulloch, BSc Tasm APA
 Ms Sylvia Sutanto, BSc ITB Indonesia ADCOS/ANUPS
 Mr Michael Walker, BSc Monash GSS

Commitment to Teaching



Commitment to Teaching



Honours Students

David Carberry	Engineering	AM
Janey Wood	Chemistry	AM
Kong Ng	Engineering	EME
Kallista Stewart	Engineering	EME
Naomi Sih	Engineering	LPC
Richard Heck	Engineering	LPC
David Tierney	Engineering	LPC
Ben Cusack	Physics	OSC
Peter Linardakis	Engineering	PRL
Nathanael Smith	Physics	EME
Meera Parish	Physics	TP

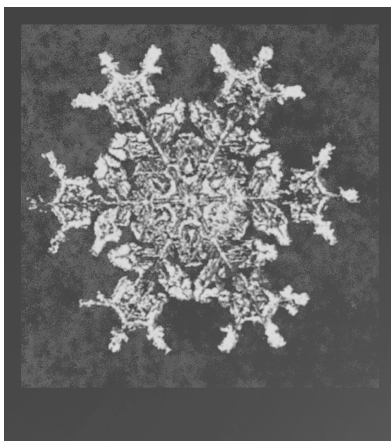
Summer Scholars

The following students spent periods of up to twelve weeks in the Research School from December 2000 to February 2001:

Ms Sarah Hicks	Melbourne University	AM
Mr Joseph Hughes	Australian National University	AM
Ms Megan O'Mara	Australian National University	AM
Ms Joanne Harrison	Flinders University	AMPL
Ms Kate Nixon	Flinders University	AMPL
Mr Justin Betlehem	Australian National University	EME
Ms Casurina Dalton	Australian National University	EME
Mr Michael Fraser	Griffith University	EME
Mr Matthew Lay	Melbourne University	EME
Mr Andrew Wilkinson	Australian National University	EME
Mr Jun Yu	Australian National University	EME
Mr Michael Pracy	University of Wollongong	LPC
Mr Sean Wallace	Queensland University of Technology	LPC
Mr Johari Juarsa	Australian National University	NP
Mr Glenn deVine	Australian National University	NP
Mr Nicolas Whitlock	University of Queensland	OSC
Ms Aska Dolinska	Australian National University	PRL
Mr Kenneth Fairbairn	University of Sydney	PRL
Ms Megan Jolley	Australian National University	PRL
Mr Kris Modrak	Australian National University	PRL
Ms Meera Parish	Australian National University	TP
Mr Ben McMillan	Melbourne University	PRL

The students toured the School and the Department of Physics and Theoretical Physics in The Faculties, and gave short presentations on the projects they had undertaken at a seminar held at the end of their stay.

Commitment to Teaching



Commitment to Teaching



Winter Scholars

Winter Scholarships were again offered and the following students (all from the Australian National University) spent periods of up to three weeks in the Research School from July to August 2000 working in various departments on topics of their choice:

Mr Stewart Wilson	NP
Mr Jeremy Price	AMPL
Mr Andrew Wilkinson	EME
Mr Ben Cornish	LPC
Ms Tanja Schuck	NP/EME

Students gave a short presentation at the end of their stay.

Visiting Scholars

The following undergraduate and postgraduate scholars spent time in the School for the purpose of training and research:

Mr Armin Bauer	University of Regensburg, Germany	AM
Ms Eva Loste	Queen Mary College, UK	AM
Mr Mukesh Makwana	Imperial Coege, UK	AM
Ms Chiara Neto	University of Florence, Italy	AM
Mr Maurizio Olla	Universita Cagliari, Italy	AM
Mr Gerd Schröder	University of Köln, Germany	AM
Mr Massimiliano Fazzi	University of Pisa, Italy	AMPL
Mr Olivier Gall	Ecole Polytechnique, France	EME
Mr Vincent Girier	Ecole Polytechnique, France	EME
Mr Rob van der Heijden	University of Technology, Eindhoven	EME
Mr Twan van Lippen	University of Technology, Eindhoven	EME
Mr Juan Uribasterra	Lunds Tekniska Hogskola, Sweeden	EME/NP
Mr Gabriel Calvo	Universidad Autonoma de Madrid, Spain	LPC
Mr Martin Stritzker	University Augsburg, Germany	LPC
Mr Carsten Weilmann	Darmstadt University of Technology, Germany	LPC
Ms Daniella Werner	FH Aalen University of Applied Sciences, Germany	LPC
Mr Nick Ashwood	University of Birmingham, UK	NP
Ms Monica Caamano	University of Surrey, UK	NP
Ms Aska Dolinska	Department of Physics, ANU	NP
Mr Jonathon Donnelly	Department of Engineering, ANU	NP
Ms Hasna El-Masri	University of Surrey, UK	NP
Mr Antonio Emmanouilidis	University of Brighton, UK	NP
Mr Barry Greenhalgh	University of York, UK	NP
Mr Daniel Groth	Michigan State University, USA	NP
Ms Clare Harrison	University of York, UK	NP
Mr Huw Jones	Middlesex University, UK	NP

Ms Olivia Marsden	University of Manchester, UK	NP
Mr Nicolas Orce-Gonzalez	University of Brighton, UK	NP
Mr Jon Pearson	University of York, UK	NP
Ms Joann Prisciandaro	Michigan State University, USA	NP
Ms Tanja Schuck	University of Heidelberg, Germany	NP/EME
Mr William Standring	Agricultural University of Norway	NP
Ms Claire Wells	University of Manchester, UK	NP
Mr Richard Wooliscroft	University of Birmingham, UK	NP
Mr A.E. Ash	Ericsson Australia Pty Ltd	OSC
Mr B.C. Gibson	La Trobe University	OSC
Mr J. Katsifolis	La Trobe University	OSC
Mr P.J. Moar	La Trobe university	OSC
Mr Mario Anich	Fachhochschule Ravensburg, Germany	PRL
Mr Edmund Baillot	University of Orleans, France	PRL
Mr Vincent Caepelin	University of Marseille, France	PRL
Mr Andreas Danielsson	Chalmers University of Technology, Sweden	PRL
Mr Thierry Drouet	IRESTE, France	PRL
Mr Sinisa Rubil	Fachhochschule, Kempten, Germany	PRL
Mr David Wotton	Australian National University	PRL

The following students, from local high schools and colleges, visited the School for work experience:

Mr Greg Davies	Canberra College	NP
Mr Thomas William	Daramalan College	NP

Commitment to Teaching



Science Schools

Optical Sciences Centre

The 2000 Siemens Science and Engineering Experience, ANU, for Students entering Year 10 in 2001 was directed by Professor John Love, assisted by the treasurer, Mrs Andrea Robins from the Optical Sciences Centre, and received managerial support from the Centre for Continuing Education. The event was held from 11-13 September and attracted 81 students from the ACT and country NSW. Members of the School who helped with the presentation of lectures and tours of facilities in the School included Dr John Martin, LPC, Dr Tim Thompson, Administration, and Professor John Love, OSC.

Other Activities

Physics Summer School: see ANU Centre for Theoretical Physics (page 80)

National Youth Science Forum: see Outreach Activities (page 92)