Commitment to Teaching

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.
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-stochiometry 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
Postgraduate Students

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 Melbourne 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, BApSc 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 IPRS/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 Snejana Tomljenovic-Hanic, BSc Belgrade APA(I) (jointly with OSC)
Ms Kylie Waring, BSc Monash APA (jointly with AMPL)
Ms 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 Snejana 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 Sandy 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 Geoffrey 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
Honours Students

<table>
<thead>
<tr>
<th>Name</th>
<th>Discipline</th>
<th>Acronym</th>
</tr>
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<tbody>
<tr>
<td>David Carberry</td>
<td>Engineering</td>
<td>AM</td>
</tr>
<tr>
<td>Janey Wood</td>
<td>Chemistry</td>
<td>AM</td>
</tr>
<tr>
<td>Kong Ng</td>
<td>Engineering</td>
<td>EME</td>
</tr>
<tr>
<td>Kallista Stewart</td>
<td>Engineering</td>
<td>EME</td>
</tr>
<tr>
<td>Naomi Sih</td>
<td>Engineering</td>
<td>LPC</td>
</tr>
<tr>
<td>Richard Heck</td>
<td>Engineering</td>
<td>LPC</td>
</tr>
<tr>
<td>David Tierney</td>
<td>Engineering</td>
<td>LPC</td>
</tr>
<tr>
<td>Ben Cusack</td>
<td>Physics</td>
<td>OSC</td>
</tr>
<tr>
<td>Peter Linardakis</td>
<td>Engineering</td>
<td>PRL</td>
</tr>
<tr>
<td>Nathanael Smith</td>
<td>Physics</td>
<td>EME</td>
</tr>
<tr>
<td>Meera Parish</td>
<td>Physics</td>
<td>TP</td>
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</tbody>
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Summer Scholars

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

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

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.
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 College, 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, Sweden EME/NP
Mr Gabriel Calvo Universidad Autonoma de Madrid, Spain LPC
Mr Martin Stritzker University Augsburg, Germany LPC
Mr Carsten Weihmuel Darmstadt University of Technology, Germany LPC
Ms Daniella Werner FH Aalen University of Applied Sciences, Germany LPC
Mr Nick Aswood University of Birmingham, UK NP
Ms Monica Caamaño University of Surrey, UK NP
Ms Aska Dolinka 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 Birmingham, 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
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)