



*Dr Neil Manson -
Associate Director (Students)*

Introduction

The School has a significant commitment to postgraduate training. In 2001 we had a total of 81 PhD students, including continuing students and those completing their thesis. A total of 22 postgraduate students (including 2 MPhil students) commenced their program of study during the year, seven of those being women.

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

Several student prizes were presented at Founder's Day on 12th October:

The Jagadishwar Mahanty Prize, awarded biennially for the best PhD thesis: The winner was Marcus Kohonen of the Department of Applied Mathematics for his thesis entitled "Experiments on Capillary Condensation".

The Director's Award, for the most outstanding published research paper by a PhD student over the last year: The winner was Annette Berriman of the Department of Nuclear Physics, for her paper entitled "Unexpected Inhibition of Fusion in Nucleus-Nucleus Collisions" in *Nature* **413** (2001) 144-147.

The Graduate Program in Physical Sciences ran a seminar competition for the eighth 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 conclusion 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:

Scott Collis, Plasma Research Laboratory, for his talk entitled "Density Studies in H-INF at 1/2 Tesla".

Winner of the Director's Prize was:

Ira Cooke, Department of Applied Mathematics, for his talk entitled "Folding of Co-polymers"

Winner of the Dean's Prize was:

Cameron Fletcher, Department of Physics, The Faculties, for his talk entitled "Bose-Einstein Condensation".

The School also makes a significant contribution to undergraduate education by offering a broad 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 three in the current year. It was also pleasing to note that five students who held either vacation scholarships, honours scholarships or were visiting scholars in 2000 have continued and enrolled as PhD students in the School in 2001.

An increasing number of international and interstate undergraduate and postgraduate scholars, 38 and 21, respectively, spent three months to one year in various departments for the purpose of training and research in 2001.



This list includes all students who have graduated (Dr) or completed all requirements to meet the Degree for either PhD or MSc.

Applied Mathematics

Markus Kohonen

Thesis: *Experiments on Capillary Condensation*

Currently: Ulm University, Germany

Nobuo Maeda

Thesis: *Phase Transitions of Long-chain n-alkanes at Interfaces*

Currently: University of California, Santa Barbara, USA

Ying Qiao

Thesis: *On Adsorption, Wetting & Capillary Condensations*

Currently: Max Planck Institut für Metallforschung, Germany

Mario Ramos (Department of Forestry, The Faculties)

MSc Thesis: *Improving the Gluing of Eucalypt Timber by Plasma Modification of Wood Surfaces*

Dr Marek Schmidt (jointly with EME)

Thesis: *Phase Formation and Structural Transformation of Strontium Ferrite $SrFeO_x$*

Currently: ISIS, part of the Rutherford-Appleton Laboratory, Oxford, UK

Atomic and Molecular Physics Laboratories

Mohammed Arifin (jointly with TP)

MSc Thesis: *Calculation of Two-electron Photoionization of Metastable Helium using the Convergent Close-coupling Method*

Currently: Indonesia University of Education

Dr Andrew Elliott

Thesis: *Electron-impact Ionization Studies of Laser-excited Atoms*

Currently: University of Oklahoma, USA

Electronic Materials Engineering

Dr Sanju Deenapanray

Thesis: *Atomic Relocation Processes in Semiconductor Materials*

Currently: ARC Postdoctoral Fellow, ANU

Annette Dowd

Thesis: *Nonlinear Optical Properties of Germanium Implanted Silica*

Currently: Cavendish Laboratory, Cambridge, UK

Lan Fu

Thesis: *Quantum Well Intermixing in (In)GaAs/(Al)GaAs Materials and Devices*

Currently: ANU

Dr Craig Johnson

Thesis: *Ion Implantation into Silica: Formation of Waveguides and Related Effects*

Currently: Sandia National Laboratories, USA

Dr Charlene Lobo

Thesis: *Growth, Structure and Luminescence of Self-assembled III-V Quantum Dots*

Currently: Cavendish Laboratory, Cambridge, UK

Dr Marek Schmidt (jointly with AM)

Thesis: *Phase Formation and Structural Transformation of Strontium Ferrite $SrFeO_x$*

Currently: : ISIS, part of the Rutherford-Appleton Laboratory, Oxford, UK

Dr Xianfang Zhu

Thesis: *Nanostructures and their Metastabilities in Silicon Induced by Ion Bombardment*

Currently: University of Illinois at Urbana-Champaign, USA

Laser Physics Centre**Dr Andrew Greentree**

Thesis: *Subharmonic Resonances in a Polychromatically Driven Two Level System*

Currently: Graduate Open University, UK

Plasma Research Laboratory**Dr Rex Bean**

Thesis: *Plasma Treatment of Wool*

Theoretical Physics**Mohammad Arifin** (jointly with AMPL)

MSc Thesis: *Calculation of Two-electron Photoionization of Metastable Helium Using the Convergent Close-Coupling Method*

Currently: Indonesia University of Education

Dr Sylvia Sutanto

Thesis: *Relativistic Wave Equations, Compton Scattering & Hydrogenic Atoms*

Currently: Parahyangan Catholic University, Bandung, Indonesia

Dr Paulus Tjiang

Thesis: *Gauge Covariance and Fermion-Photon Vertex in Massless Quantum Electrodynamics*

Currently: Parahyangan Catholic University, Bandung, Indonesia



Sources of Funding:

ADFA Australian Defence Force Academy
 ANUPS Australian National University Postgraduate Scholarship
 ANUPTS Australian National University Postgraduate and Tuition Fee Scholarship
 APA Australian Postgraduate Award
 APA(I) Australian Postgraduate Award (Industry)
 CRC Cooperative Research Centre
 CSIRO Supported by the Commonwealth Scientific & Industrial Research Organisation
 GSS Graduate School Scholarship
 OPRS Overseas Postgraduate Research Scholarship
 SPIRT ARC SPIRT Grant
 RMIT Royal Melbourne Institute of Technology
 VC Vice Chancellor's Supplementary Scholarship
 WS RSPHysSE Supplementary Scholarship for Women

The lists include first year students who were not enrolled for the full year and continuing students who have not yet graduated.

Applied Mathematics

Mr Ira Cooke, BSc JCU, APA
 Ms Lydia Knüfing, BSc Wuppertal, ANUPTS (from October)
 Mr Ray Roberts, BSc, CRC (from September)
 Mr Mohammud Saadatfar, BSc Mazandaran MSc IASBS, ANUPTS (from October)
 Mr Gerd Schröder, Dipl Phys Cologne, ANUPS/OPRS (from February)

Atomic and Molecular Physics Laboratories

Mr Max Colla, MSc Pisa, OPRS/ANUPS (jointly with LPC)
 Mr Robert G. Dall, BSc CQld, APA (jointly with LPC)
 Ms Vanessa Leung, BSc Massey, GSS (jointly with LPC)
 Mr Edward H. Roberts, BE BSc NSW, MBA Deak, APA
 Mr James A. Swansson, BA MSc Melb, APA (jointly with LPC)
 Ms Linda J. Uhlmann, BAppSci CQld, APA
 Ms Kylie Waring, BSc Mon, APA (jointly with LPC)

Director's Unit

Mr Tristram Alexander, BSc Darwin, APA
 Ms Sam Ashby, BSc Sydney, APA(I)/ADC Telecommunications Australia Pty Ltd
 Ms Vicky Au, BA BSc Melb, ANUPS (jointly with PRL) (from August)
 Mr Keith Gaff, BSc Mon, APA(I)/ADC Telecommunications Australia Pty Ltd (jointly with PRL) (until May)
 Ms Ruth Jarvis, BE BSc, APA(I)/Siemens Ltd
 Ms Pearl Louis, BSc, ANUPS (jointly with TP) (from April)
 Mr Nick Robins, BSc, ANUPS (until August)
 Mr Andrey Sukhorukov, BSc Mosc, OPRS/ANUPS
 Ms Snjezana Tomljenovic-Hanic, BSc Belgrade, APA(I)/ADC Telecommunications Australia Pty Ltd (jointly with LPC)

Electronic Materials Engineering

Ms Jodie Bradby, BapSc RMIT, APA(I) Australian Scientific Instruments
 Mr David Brett, BSc Melb, ANUPS (from February)
 Ms Christine Carmody, BSc UNSW, APA/CSIRO
 Ms Stephanie Cheylan, BSc MSc Grenoble, ANUPS/OPRS (jointly with LPC)
 Mr Michael Cohen, BEng UQ, APA
 Mr Michael Gao, BE ME Northeastern University, PRC, IPRS/ANUPS

Mr Chris Glover, BSc Newcastle, ANUPS
 Ms Jillian Hay, BE Canterbury, ANUPS
 Mr Ali Khalil, BSc MSc Cairo, ANUPS (from June)
 Mr Sergei Kucheyev, MPh St. Petersburg, OPRS/ANU
 Ms Penelope Lever, BE Canterbury, ANUPS
 Mr Nat Smith, BSc, ANUPS (from August)
 Mr Marc Spooner, BSc Ottawa, MSc Western Ontario, ANUPS (from October)
 Ms Tessica Weijers, BSc BAppSc QUT, APA/VC/WS (jointly with NP)

Laser Physics Centre

Ms Stephanie Cheylan, BSc MSc Grenoble, ANUPS/OPRS (jointly with EME)
 Mr Max Colla, MSc Pisa, OPRS/ANUPS (jointly with AMPL)
 Mr Roger Dall, BSc CQLD, APA (jointly with AMPL)
 Mr Tim Dyke, BSc Monash, APA
 Mr Elliot Fraval, BE BSc UC, ANUPS (from January)
 Mr Vesselin Kolev, Eng-Phys Plovdiv, GSS
 Ms Vanessa Leung, BSc Massey, ANUPS (jointly with AMPL)
 Mr Jevon Longdell, BSc Waikatao, MSc Auck, ANUPS
 Mr Glen McCarthy, BSc Dip Ed UNSW, ANUPS
 Mr Joseph Morrall, BSc, ANUPS (from July)
 Ms Eleni Notaras, BA BSc, Redfern Polymer Optics (from September)
 Mr Syed Quddus, MSc MPhil Pakistan, ANUPS (from October)
 Ms Yinlan Ruan, BSc MSc HUST China, ANUPS (from May)
 Mr Darryl Scott, BSc Wollongong, ANUPS
 Mr James Swansson, BA BSc MSc Melb, APA (jointly with AMPL)
 Ms Snjezana Tomljenovic-Hanic, BSc Belgrade, APA(I)/ADC Telecommunications Australia Pty Ltd (jointly with DU)
 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/VC
 Ms Jodie Evans, BSc, ANUPS (jointly with RSES) (until July)
 Ms Judith Hazel, BSc DipSci MSc Otago, ANUPS
 Mr Michael Jennings, BSc MSc Otago, ANU(RSPSE) (from April)
 Mr Tom McGoram, BSc MSc Auckland, APA
 Mr Martyn Robinson, BSc Surrey, ANUPS
 Ms Tessica Weijers, BSc BAppSc QUT, APA/VC/WS (jointly with EME)

Plasma Research Laboratory

Ms Vicky Au, BA BSc Melb, ANUPS (jointly with DU) (from August)
 Mr Scott Collis, BSc Syd, ANUPS
 Mr James Constable, BE, ANU (from April)
 Mr Fenton Glass, BSc Qld, ANUPS
 Mr Rhys Hawkins, BE BIT, ANUPS
 Mr Peter Linardakis, BSc, APA (from April)
 Mr Liviu Lungu, MSc Polytechnic University, Bucharest, SPIRT
 Mr Ben McMillan, BSc Melb, APA (jointly with TP) (from February)
 Mr Clive Michael, BSc, APA

Mr David Pretty, BSc Melb, ANUPS (from February)
 Mr Horst Punzmann, BSc Polytech Regensburg, ANUPS
 Mr Wayne Solomon, BSc Qld, APA
 Mr Orson Sutherland, BE, APA
 Mr John Wach, BAppSc BCAE, GradDipElect CCAE, (self-funded)
 Ms Hua Xia, MSc Chongqing, ANUPTS (from June)

Theoretical Physics

Mr Yung-Kai Chan, BSc, (self-funded)
 Mr Geoffery Ericksson, BSc Qld, ANUPS
 Mr Ben Corry, BSc, APA
 Mr Anthony Hibberd, BSc Qld, APA (until August)
 Mr Heinz Horn, BSc Qld, ANUPS
 Mr Alexei Khorev, DipPhys Mosc PTI, OPRS/ANUPS (until August)
 Ms Sally Lloyd, BSc Murdoch, APA
 Ms Pearl Louis BSc, ANUPS (jointly with DU) (from April)
 Mr Ian McCulloch, BSc Tasm, APA (until November)
 Mr Ben McMillan, BSc Melb, APA (jointly with PRL) (from February)
 Ms Meera Parish, BSc, GSS/Malcolm McIntosh Prize/WS (from March)

Honours Students

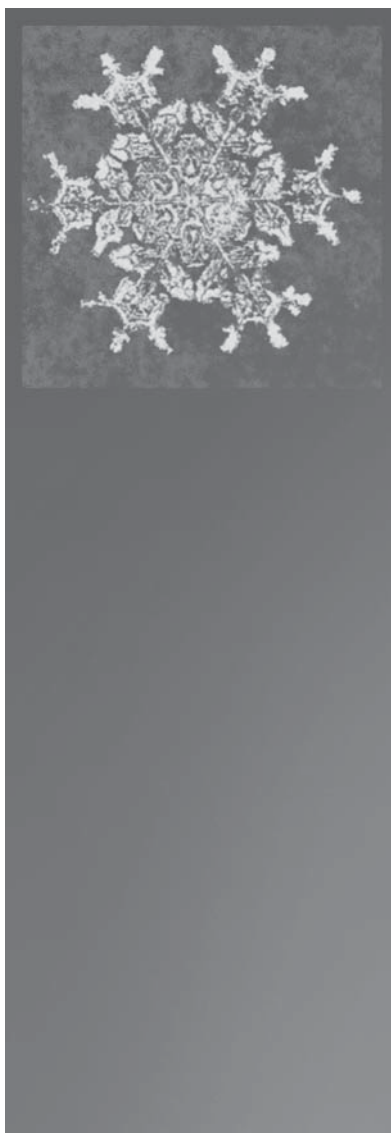


The following students were enrolled in Honours or final year undergraduate course.

Drew Evans	Chemistry	AM
Michael Turner*	Geography	AM
Joanne Harrison*	Physics	AMPL
Christoph Puetter	Physics (3 rd Year student)	AMPL
Adrian Cheung	Engineering	EME
Timothy Walsh*	Physics	EME
Andrew Wilkinson	Engineering	EME
Ben Cornish	Engineering and Information Technology	LPC
David Mitchell	Physics	NP
Gabrielle Le Cornu	Engineering and Information Technology	PRL
Sara Passer	Engineering and Information Technology	PRL
David McCleneghan	Engineering and Information Technology	PRL
John Ringland	Physics and Theoretical Physics	TP

* received a RSPHysSE Honours Scholarship

Summer/Winter Scholars



The following students spent periods of up to twelve weeks in the Research School from December 2001 to February 2002:

Summer Scholars

Ms Annabel Alexander	Australian National University	AM
Mr Toen Castle	University of New England	AM
Mr Drew Evans	Australian National University	AM
Ms Edith Hamilton	Australian National University	AM
Mr David Oliver	University of Wollongong	AM
Mr Nan Ye	Australian National University	AM
Mr Gregory Jolley	Northern Territory University	AMPL
Ms Carolyn Miers	University of Waikato, NZ	CfM
Ms Anne Barnett	University of Canterbury, NZ	EME
Mr Adrian Cheung	Australian National University	EME
Ms Victoria Coleman	Flinders University	EME
Mr Sachin Doshi	Australian National University	EME
Mr Matthew Duggan	Australian National University	EME
Mr Darren Freeman	Flinders University	LPC
Mr Lodi van Dyke	Australian National University	NP
Mr Chi Tak Chung	Australian National University	PRL
Mr Tarek Helmy	Australian National University	PRL
Mr Benjamin Heslop	Australian National University	PRL
Ms Demelza Kurylowicz	Australian National University	PRL
Mr Roy Lam	Australian National University	PRL
Mr Liang Tai	Australian National University	PRL
Mr Jeta Vedi	Australian National University	PRL
Ms Annie Wang	University of WA	PRL
Mr Philip Brydon	Australian National University	TP
Ms Taira Vora	Australian National University	TP

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

Mr Drew Evans	Australian National University	AM
Mr Adrian Cheung	Australian National University	EME
Mr Michael Fraser	Griffith University	EME
Ms Mushtari Afroz	University of Queensland	PRL
Mr Chi Tak Chung	Australian National University	PRL
Mr Jeta Vedi	Australian National University	PRL

Visiting Scholars

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

Christoph Arns	UNSW	AM
Elmar Bonaccorso	Siegen University, Germany	AM
Kjetil Djurhuus	University of Bergen, Norway	AM
Ji Youn Lee Arns	UNSW	AM
Jianhua Liu	UNSW	AM
Michael Schwertner	Leipzig University, Germany	AM
Lehoa Scruton	Australian National University	AM
Ahmad Teymoori	UNSW	AM
Connie Höhr	Max Planck Institute for Nuclear Physics, Germany	AMPL
Erik Van Ooijen	University of Utrecht, The Netherlands	AMPL/LPC
Brant Gibson	La Trobe University	DU
Andreas Johansson	Chalmers University of Technology, Sweden	DU
Patrik Johansson	Chalmers University of Technology, Sweden	DU
Jim Katsifolis	La Trobe University	DU
Kristian Motzek	Darmstadt University of Technology, Germany	DU
Satoru Shoji	Osaka University, Japan	DU
Benedikt Hecking	University of Bonn, Germany	EME/NP
Tanja Dessauvague	University of Bonn, Germany	EME/NP
Arnaud Martin	Ecole Polytechnique, France	EME
Twan van Lippen	University of Technology, Eindhoven, The Netherlands	EME
Juan Uribasterra	Lunds, Tekniska Hogskola, Sweden	EME
Swetha Veerapanane	Torney Pines High School, USA	EME
Ben Williams	Australian National University	EME
Mathias Hildebrandt	Fachhochschule Ostfriesland, Germany	LPC
Bronwen Taylor	Macquarie University	LPC
Annabel Alexander	Department of Physics, Australian National University	NP
Nick Ashwood	University of Birmingham, UK	NP
Elizabeth Barnes	University of Wollongong	NP
Abdurrahman Ceylan	University of Wollongong	NP
Patrick Cherry	Manchester University, UK	NP
Michael Currie	University of Wollongong	NP
Julian Drake-Brockman	University of Wollongong	NP
Hasna El-Masri	University of Surrey, UK	NP
Barrie Greenhalgh	University of York, UK	NP
Darren Groombridge	University of York, UK	NP
Clare Harrison	University of York, UK	NP
Dean Inwood	University of Wollongong	NP
Carl Metelko	University of Birmingham, UK	NP
Tamara Molloy	University of Wollongong	NP
Andrew Moylan	Department of Physics, Australian National University	NP
Adrian Mozejko	University of Wollongong	NP
Bradley Oborn	University of Wollongong	NP
Nicolas Orce-Gonzalez	University of Brighton, UK	NP
Matt Owers	University of Wollongong	NP
Steven Pain	University of Birmingham, UK	NP
Jonathan Pearson	University of York, UK	NP
Francisco Prados	University of Brighton, UK	NP
Dale Prokapovich	University of Wollongong	NP
Michael Smith	University of Wollongong	NP
Nevin (Soya) Soic	University of Birmingham, UK	NP
Simon Turner	University of Wollongong	NP
Taira Vora	Department of Physics, Australian National University	NP
Russell Wood	University of Surrey, UK	NP
Andrew Wroe	University of Wollongong	NP
Ane Aanesland	Tromso, Norway	PRL
Greg Alcott	Eindhoven Technical University, The Netherlands	PRL
Andreas Danielsson	Chalmers University of Technology, Sweden	PRL
Oliver Gall	Ecole Polytechnique, France	PRL
Mark Hirsch	Fachhochschule Kempten, Germany	PRL

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

Daniel Chubb	CSIRO Student Research Scheme	NP
Tracy Slacher	Narrabundah College, IB Scheme	NP



The Australian Photonics School

The Australian Photonics School was organised by Professor J.D. Love from the DU and held at the Australian Technology Park, Sydney, 28-30 June, under the auspices of the Australian Photonics CRC. The event included lectures and hands-on activities and attracted 56 delegates from academia, government and industry, including 11 from overseas. Lectures were provided by a number of photonics and legal experts from within Australia and from overseas.



Participants in the Australian Photonics School

Siemens Science and Engineering Experience

The 2001 Siemens Science and Engineering Experience, ANU, for Students entering Year 10 in 2002 was directed by Professor J.D. Love and received managerial support from the Centre for Continuing Education. The event was held from 3-5 October and attracted 86 students from the ACT and country NSW. Members of the School who helped with the presentation of lectures included Dr Tim Thompson, Dr M. Sellars and Professor J.D. Love.



Participants in the Siemens Science and Engineering Experience

Mini Summer School in Plasma Physics

The Australian National University Centre for Theoretical Physics hosted a Mini Summer School in Plasma Physics between 29 January and 2 February, 2001.

Plasma physics underlies much of our understanding of stellar and galactic structure; it determines the magnetospheric environment of the earth and other planets; it forms the research frontier in areas such as nuclear fusion, advanced accelerators and high frequency lasers and is being increasingly used in industry - notably in the fabrication of computer chips. This course emphasised the intrinsic scientific interest of the plasma state of matter and attempted to develop an understanding on plasma behavior in a thorough and systematic fashion.

Biophysics Summer School

The Australian National University Centre for Theoretical Physics also hosted a Summer School entitled Biophysics: From Proteins to Cells between January 15 and 26, 2001 addressing physical perspectives on the emerging molecular structure of biosystems.