Interactions Across the University

The School assumes an active role in many areas across campus. For example, School staff contribute to the Centre for the Science and Engineering of Materials, the Quaternary Dating Research Centre and the Visual Sciences Research Centre. Details of the associated collaborations with other Schools, including RSBS, RSC, RSES and JCSMR, are found in Research Accomplishments (section 1) and Collaborative Ventures (section 3).

In this section we emphasise specifically the relationship with The Faculties, with whom the School has traditionally enjoyed a high level of interaction. This is particularly so for the Departments of Physics and Chemistry in the Faculty of Science, and the Faculty of Engineering and Information Technology. These interactions are reinforced by a number of joint staff appointments.

This year, School staff delivered 24 undergraduate courses in The Faculties and assumed responsibility for supervision and co-supervision of a number of honours and graduate students. These activities, together with details of research collaborations with Faculty staff (see also section 3 of the report) are reported below. The final part of this section lists contributions that School staff make to the routine functioning and management of the University.
Interaction with The Faculties

Department of Applied Mathematics

Dr V.J.S. Craig gave 5 lectures in CHEM 3052 3rd year Physical Chemistry, Colloid and Surface Chemistry. He also gave an Honours lecture course comprising 7 lectures, entitled The Last Nanometres and supervised the 12 week laboratory course.

Dr T.J. Senden taught a lecture and laboratory course in 3rd year Physical Chemistry 3052, Department of Chemistry and taught part of an Honours lecture course on Surface Chemistry in the Department of Chemistry. He also gave a lecture and laboratory session in connection with the Faculty of Engineering (ENGN4517), and gave assistance with several 4th year projects.

Dr D W.R. Williams gave a 3rd year Statistical Physics and Soft Matter course, in the Department of Physics. This was a course of 20 lectures during September and October. Professor S. Hyde presented one lecture of the course.

Atomic and Molecular Physics Laboratories

Collaboration on “Atom Optics” continues between the Atom Manipulation project in the School and the Physics Department in The Faculties, involving Dr M.D. Hoogerland, Professor S.J. Buckman and Dr K.G.H. Baldwin [LPC]; Professor H. Bachor, Dr D. McClelland and Dr C. Savage [Physics Department, The Faculties].

This year the Department hosted one Physics Honours student for their experimental project work. Mr Robinson worked on experiments using the metastable helium trap in the Atom Manipulation project.

Dr A. Kheifets and Professor S.J. Buckman gave an Honours level lecture course in Atomic Collision Processes in April/May.

Dr M.D. Hoogerland contributed to a 3rd year lecture course in Laser Physics.

Dr M. Vos gave a course in Solid State Physics for 3rd year Physics students and 4th year Engineering students in August/September.

Electronic Materials Engineering

Dr R.G. Elliman and Professor C. Jagadish participated in teaching Microelectronic Processing Elective Course in the Department of Engineering, The Faculties.

Dr R.G. Elliman presented a general lecture in ion-beam analysis in CSEM lecture series

Professor C. Jagadish and Dr H.H. Tan supervised one Engineering Honours student, and he and Dr J. Wong-Leung co-supervised a PhD student in the Department of Engineering, The Faculties.

Dr H. Timmers (joint position with Nuclear Physics) lectured on Nuclear Reactions, to 3rd year Physics students, Department of Physics and Theoretical Physics, and gave tutorials and laboratory demonstrations to 1st year Physics and Engineering students, Department of Physics and Theoretical Physics.

Professor J.S. Williams supervised one Engineering Honours student.

Laser Physics Centre

Dr K.G.H. Baldwin gave an Honours year course in Atom Optics in the Physics Department, and gave a short course in Lasers in Semiconductor Technology to 3rd year Engineering students. Co-supervised a physics Honours student working on experiments in the Atom Manipulation project, and collaborated with AMPL and the Physics Department, The Faculties on several projects.
Collaborations began with Dr C. Savage of the Department of Physics, Faculty of Science and former student Ms K. Catchpole on the “Fundamentals of a Driven Two-Level Atom”. Staff involved are Dr N.B. Manson, Dr C. Wei and Dr J.P.D. Martin. Collaboration with Dr M. Humphrey, Chemistry Department, Faculty of Science on the “Nonlinear Optical Properties of Organometallics” continues. Staff involved are Dr M. Samoc and Professor B. Luther-Davies.

### Nuclear Physics

Dr A.M. Baxter of the Department of Physics and Theoretical Physics carries out research on “Nuclear Spectroscopy” in the Nuclear Physics Department.

Dr A.P. Byrne holds a joint appointment with the Department of Physics and Theoretical Physics.

Dr T. Esat from the Department of Geology carries out research on the “Calibration of the Radiocarbon Time Scale 30-40 ka BP” in the Nuclear Physics Department.

Dr L.K. Fifield continues collaborations with:

- Dr P. De Deckker and Dr B. Opdyke of the Geology Department on “Dating of Marine Cores with Carbon-14”;  
- Professor J. Chappell, RSES on “Measurement of Erosion Rates at a Range of Scales in the Australian Landscape using in situ Produced 10Be”;  
- Professor K. Lambeck and Y. Yokoyama, RSES and Drs P. De Deckker and B. Opdyke, Department of Geology on “Precise Reconstruction of Past Sea Levels via Radiocarbon Chronologies of Shallow Marine Cores from Northern Australia”;  
- Professor K. Lambeck and Y. Yokoyama, RSES and Dr T. Esat, Department of Geology on “Evidence for Large Fluctuations in Atmospheric 14C between 30 and 50 ka BP from Uplifted Coral Terraces from the Huon Peninsula, PNG”;  
- Professor R. Wasson, CRES on “Landscape Evolution in the Southern Highlands Region of NSW, using 10Be Deposited from the Atmosphere”;  
- T. Barrows, RSES (and with Dr J. Stone, now University of Washington) on “A Glaciation Chronology of the Snowy Mountains and Tasmania Determined from in-situ Produced 10Be and 36Cl”.

Dr A.E. Stuchbery lectured 3rd year physics students, Department of Physics on Elementary Particle Physics.

Dr H. Timmers, (joint position with EME) gave a lecture course on Nuclear Reactions to 3rd year students in the Department of Physics and Theoretical Physics, The Faculties, and conducted tutorials and laboratory demonstrations for 1st year Physics and Engineering students, Department of Physics and Theoretical Physics.

He also supervised the Honours project of Mr Stephen Jones, “Compositional Ion Beam Analysis of YBCO Superconducting Films”.

### Optical Sciences Centre

Professor Yu.S. Kivshar in collaboration with Dr C. Savage, Department of Physics, The Faculty of Science, organised the One-Day International Workshop on Bose-Einstein Condensates and Atom Lasers, held on 24 November in the RSPhysSE.

Dr A. Ankiewicz and Professor J.D. Love taught the Optical Communications course for Physics and Engineering students in the Department of Physics.

Dr D. Edmundson taught a 2nd year lecture course (12 lectures) on Thermodynamics, and a section of the 3rd year Computational Physics lecture course on Symbolic Computation, and gave teaching assistance to 1st year students and a laboratory technician in the 1st year optics laboratory.

### Plasma Research Laboratory

Dr G.G. Borg supervised Mr S. Chan, Mr C. Chung, Mr K. Kwai, Mr B. Kwan and Mr T. Ng, Faculty of Engineering Information Technology (FEIT) during their 4th year Engineering projects.

Professor R.W. Boswell participated in the FEIT Microelectronics course and is supervising three Engineering projects.

Dr. B.D. Blackwell supervised Mr D. Price of FEIT during his 4th year Engineering project.

Dr J. Howard presented an eighteen-lecture course on Plasma Physics to 3rd year students, Department of Physics, The Faculties.

Dr J. Howard supervised Mr A. Last during his 4th year Engineering project.

Dr M.G. Shats supervised Mr A. Gough during his 4th year Engineering project.

### Theoretical Physics

Dr C.J. Burden gave a series of 10 lectures entitled Special Relativity to 3rd year students at Physics and Theoretical Physics, The Faculties from March to April, and again from April to June (a segment of PHYS3001).

Professor R.L. Dewar gave a series of 10 lectures on Classical Mechanics to 3rd year students at Physics and Theoretical Physics, The Faculties from March to April (a segment of PHYS3001). (Dr R. Ball acted as tutor for these lectures)

Dr H.J. Gardner lectured in COMP1100 Introductory Programming and Algorithms, ENGN4518 Computational Engineering and COMP3067 Computational Science and Engineering.

Dr M. Galacisi delivered a lecture course on Statistical Physics to Honours students at the Department of Physics and Theoretical Physics, The Faculties.

Dr A. Kheifets delivered a lecture course on Atomic Collision Processes to Honours students in Physics, The Faculties in March-May.

Dr S. Kuyucak is working on the study of “Ion Channels in Biological Membranes” with Dr S.H. Chung from the Department of Chemistry.

Mr M. Walker gave a course of 10 lectures in Relativistic Quantum Mechanics PHYS 3002 in the second semester as part of the 3rd year Undergraduate course, Department of Physics and Theoretical Physics, The Faculties.
University and School Service

(Full Membership of School Committees is given on page 125)

Applied Mathematics

Professor S.T. Hyde
Member, Academic Staffing Strategy Advisory Group
Member, Research Directions and Policy Advisory Group

Dr T.J. Senden
Member, Vice Chancellor's Advisory Committee for the Centre for the Science and Engineering of Materials
Member, Scanned Probe Microscopy Facility

Atomic and Molecular Physics Laboratories

Professor S.J. Buckman
Member, Board of the Institute of Advanced Studies (BIAS) (until September)
Member, BIAS Committee on General Policy (until September)
Member, Board of Studies, Graduate Program in Physical Sciences
Chair, Committee to Review Technical Services
Member, Academic Staffing Strategy Advisory Group
Member, General Staff and Facilities Advisory Group
Member, RSPhysSE School Advisory Board

Dr B.R. Lewis
Member, Faculty, Research School of Astronomy and Astrophysics
Member, Promotions Committee, Research School of Astronomy and Astrophysics
Member, Library Committee
Member, Science Library Advisory Committee
Member, Board of the Institute of Advanced Studies
Chairman, Review of RSPhysSE Stores and Purchasing

Dr S.T. Gibson
Member, IT Local Contacts Committee

Mr K.J. Lonsdale
Member, ANU Council
Member, ANU Finance Committee
Member, Steering Committee, Faculties Review
Member, Staff Amenities Fund Committee ANU
Member, Selection Committee, Council Medal for General Staff Excellence
Member, Committee to Advise Council on the Appointment of the Tenth Vice-Chancellor
Member, University Staff Consultative Committee
Panel Member, Committee of Review
Member, University Mediation Panel
Member, Committee to Review Technical Support, Department of Geology

Professor E. Weigold
Member, Board of the Institute of Advanced Studies
Member, Major National Research Facilities H-1 Board
Member, Innovations Project Steering Group
Member, Advisory Board, Research School of Astronomy and Astrophysics
Member, University Fellowships Committee
Member, Board, ANU Centre for Theoretical Physics

Electronic Materials Engineering

Dr R.G. Elliman
Member, Physical Sciences Library Committee
Member, General Staff and Facilities Advisory Group  
Member, ANU Electron Microscopy Unit Advisory Group

**Professor C. Jagadish**  
Member, Board of Studies, Graduate Program in Physical Sciences  
Member, Board of Studies, Graduate Program in Engineering  
Coordinator, RSPhysSE Physics Honours Program

**Professor J.S. Williams**  
Chair, Committee for Review of Physics, The Faculties  
Member, Selection Panel, RSES  
Member, Budget Strategy Advisory Group  
Chair, Academic Staffing Strategy Advisory Group  
Chair, External Earnings Advisory Group  
Chair, General Staff and Facilities Advisory Group  
Member, Research Directions and Policy Advisory Group

**Mr T. Halstead**  
First Aid Coordinator

### Laser Physics Centre

**Dr K. Baldwin**  
Member, Summer School Committee 2000

**Professor B. Luther-Davies**  
Member, Equipment & Facilities Advisory Group  
Member, External Earnings Strategy Advisory Group  
Member, Research Directions & Policy Advisory Group  
Member, Promotions Committee

**Dr N.B. Manson**  
Graduate Convenor, Physical Sciences Program  
Member, ANU Radiation Safety Committee  
Member, University Laser Safety Officer

**Dr J. Martin**  
Associate Editor, 1999 School Annual Report

**Mr I. McRae**  
Member, Committee to Review Technical Resources  
Member, Technical Resources Advisory Committee (TRAC)  
Member, Local Area Classification Advisory Group  
Member, Area Occupational Health & Safety Committee

**Ms A. Smith**  
Member, Staff Selection Committee  
Member, Local Area Classification Advisory Group

### Optical Sciences Centre

**Professor Yu.S. Kivshar**  
Chair, Colloquium Committee

### Plasma Research Laboratory

**Dr B.D. Blackwell**  
Member, ANU Information Technology Sponsors Committee

**Professor R.W. Boswell**  
Chair, Faculty

**Mr G.C.J. Davies**  
Member, Radiation Committee

**Professor J.H. Harris**  
Member, Equity Diversity and Consultative Group  
Member, Board of the Institute of Advanced Studies  
Referee, IAS Performance and Planning Fund  
IAS Representative, Review of the Faculties

### Theoretical Physics

**Professor R.J. Baxter**  
Member, Board, ANU Centre for Theoretical Physics

**Professor V.V. Bazhanov**  
Deputy Director, ANU Centre for Theoretical Physics

**Dr M.P. Das**  
Member, Working Party, Jagadishwar Mahanty Prize  
Co-convenor, ANU CTP Summer School on Bose–Einstein Condensation (January 2000)

**Professor R.L. Dewar**  
Deputy Chair, ANU High Performance Computing Advisory Committee  
Member, Board of the Institute of Advanced Studies  
Director, ANU Centre for Theoretical Physics

**Dr B.A. Robson**  
Member, Board of the Faculties (BIAS Representative)  
RSPhysSE Adviser on Integrity in Research  
Member, Graduate Degrees Committee  
Convenor, Working Party, Jagadishwar Mahanty Prize  
Member, Selection Committee, Jagadishwar Mahanty Prize  
Member, Board of Studies, Physical Sciences Program