RESEARCH SCHOOL OF PHYSICS & ENGINEERING ANNUAL REPORT 2010

Australian National University

ANU COLLEGE OF PHYSICAL AND MATHEMATICAL SCIENCES

FOR FURTHER INFORMATION PLEASE CONTACT

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Director's Report

Professor Jim Williams

The Research School of Physics and Engineering (RSPE) is the leading institution in the country for physics research and its applications. It is the largest physics-based research activity by some measure with over 140 academics during 2010.

RSPE maintains excellence in education and training standards and ensures a quality educational experience for all our students. We continue to develop our staff to their full potential whilst ensuring that staff skills are matched to priority directions, and implement appropriate succession planning to replace key late career staff. It is the ability of the School to launch appropriately resourced research efforts built around outstanding staff in a number of important areas of national significance, the unique and integrated research infrastructure and the interdisciplinary collaboration with colleagues across the ANU, nationally and internationally, that distinguish the School's research effort and capacity.

Grant successes during 2010 from the Australian Research Council included two new Centre of Excellence nodes, 19 discovery projects, nine Future Fellowships, two linkage projects and one linkage infrastructure Equipment and Facility (LIEF). The School is also involved in four externally-led LIEF grants, with some of the equipment being located at the School. Along with the award of five super science fellowships, and other grant successes of note were the award of an Australian Space Research Program from the Department of Innovation, Industry, Science and Research (DIISR), three from the Australian Nuclear Science and Technology Organisation (ANSTO) and eight from the Australian Synchrotron Company Ltd.

During 2010 the School significantly ramped up its development program to grow non-conventional funding through focusing on individual donors, foundations and companies including the appointment of a Development Manager, the formation of a Development Board, the consolidation of School endowments and planning towards philanthropic endowed funds (initially endowed chairs in areas of research strength) the encouragement of work place giving and the engagement with Alumni and friends of the School.

The School also lead a cross-campus effort to coordinate energy research at ANU, through an Energy Change Institute. A tenure policy was formulated and a position paper for succession planning drafted, as well as mentoring of mid-career academics in the School. We continue to communicate our research achievements through *ScienceWise* and *ANU Reporter* as well as key press releases of scientific breakthroughs.

External collaborations with colleagues from national or international institutions are indicated through: Published works - 66% (330 of 499) have been as a result of collaborations with external authors;
Research Grants - 49% (81 of 179) have been as a result of collaborations with external institutions; and Visiting Fellows – 62 visiting fellows have spent a substantial period of time at the school during the year.

The School also continued its strong performance in commercialization of its research through more than 30 grants or research contacts with industry and four active spin-off companies in 2010.

Jim Williams

Staff Accomplishments

External Honours and Awards

- **Professor Nail Akhmediev** - Humboldt Research Award, Alexander von Humboldt Foundation
- **Professor Hans Bachor** – Harrie Massey Medal and Prize, Institute of Physics and the W.H. (Beattie) Steel Medal, Australian Optical Society
- **Professor Ken Baldwin** - Barry Inglis Medal, National Measurement Institute
- **Professor Vladimir Bazhanov** – Fellowship, Australian Academy of Science
- **Dr Darren Goossens** - ACT Young Tall Poppy Scientist of the Year, Australian Institute of Policy & Science
- **Dr Matthew Hole** – Young Scientist Prize, International Union of Pure and Applied Physics
- **Distinguished Professor Chennupati Jagadish** - Fellowship, Materials Research Society and the Quantum Device Award, 37th International Symposium on Compound Semiconductors Steering Committee
- **Professor Mark Knackstedt** - New Frontiers of Hydrocarbons Prize, ENI Award 2010 and Fellowship, Australian Academy of Technological Sciences and Engineering
- **Professor David McClelland** – Fellowship, American Physical Society
- **Dr Craig Savage** - Outstanding Contribution to Student Learning, Australian Learning and Teaching Council
- **Professor Jim Williams** – Thomas Ranken Lyle Medal, Australian Academy of Science

Promotions

Level B: Drs Andrew Kingston, Avi Shalav, Dinesh Venkatachalam and Zhiyong Xu
Level C: Dr Ilya Shadrivov
Level D: Drs Tibor Kibedi, Stephen Madden, Dragomir Neshev, Matthew Sellars, Andrew Truscott, Anna Wilson, and Yin Yin Wong-Leung
Level E: Drs Christine Charles, Craig Savage and Tim Senden

ANU Vice-Chancellor awards

-Mr Alan Cooper, Career Achievement
-Dr Darren Goossens, Excellence in Education
-Dr Joseph Hope, Excellence in Education
-Mr Bernie King, Innovation & Excellence in Service Quality

Fellowships of Australian Academies and International Societies

American Physical Society (APS)
-Professor Kenneth Baldwin (since 2008)
-Professor Rod Boswell (since 1998)
-Professor Stephen Buckman (since 1998)
-Emeritus Professor Robert Crompton (since 1995)*
-Adjunct Professor Mukunda Das (2003)*
-Professor Robert Dewar (since 1980)
-Professor George Dracoulis (since 1993)*
-Professor Chennupati Jagadish (since 2003)
-Professor Anatoli Kheifets (since 2004)
-Professor Yuri Kivshar (since 2006)
-Professor Brenton Lewis (since 2001)*
-Emeritus Professor Erich Weigold (since 1990)*
-Professor Jim Williams (since 2006)

Australian Academy of Science (AAS)
-Professor Rod Boswell (since 2008)
-Professor Vladimir Bashanov (since 2010)
-Emeritus Professor Robert Crompton (since 1979)*
-Professor Robert Dewar (since 1992)
-Professor George Dracoulis (since 1997)*
-Professor Neville Fletcher (since 1976)*
-Professor David Hinde (2006)
-Professor Stephen Hyde (since 2005)
-Professor Chennupati Jagadish (since 2005)
-Professor Yuri Kivshar (since 2002)
-Professor Stjepan Marcelja (since 1991)*
-Emeritus Professor Barry Ninham (since 1978)*
-Emeritus Professor Erich Weigold (since 1986)*
-Professor Jim Williams (since 2003)

Australian Academy of Technological Sciences and Engineering (ATSE)
-Professor Rod Boswell (since 1999)
-Professor Neville Fletcher (since 1987)*
-Professor Chennupati Jagadish (since 2002)
-Professor Barry Luther-Davies (since 2005)
-Emeritus Professor Erich Weigold (since 1996)*
-Professor Jim Williams (since 1992)

Institute of Electrical and Electronics Engineers (IEEE)
-Professor Chennupati Jagadish (since 2002)

Materials Research Society (MRS)
-Professor Jim Williams (since 2008)

Optical Society of America (OSA)
-Professor Hans Bachor (since 2009)*
-Professor Kenneth Baldwin (since 2000)
-Professor Chennupati Jagadish (since 2005)
-Professor Yuri Kivshar (since 2001)
-Professor Wieslaw Krolikowski (since 2007)
-Professor Brenton Lewis (since 2003)*
-Professor Barry Luther-Davies (since 2006)

**retired*

Significant Outreach Activities

The RSPE Founder's Day was held on 15 October with invited guests from ANU, government organisations, industry and the media, as well as former employees. Two School development events were held for donors, alumni and friends of the School in July and November each involving public lectures available for the wider community. The following are examples of some major research and student events where RSPE staff members were key organisers:

- Professor Stephen Buckman, Dr Christine Charles,– Advisory Group, 16th Gaseous Electronics Meeting, Batemans Bay (31 January)
- Professor Rod Boswell - LAM Research retreat and lecture series, LAM Research Corporation, Lake Tahoe, California (first half of 2010)
- Professors Robert Dewar and Murray Batchelor – International Advisory Committee, Dynamic Days Asia Pacific 6, Sydney (12-14 July)
- Professor Murray Batchelor, Organizing Committee – Statphys 24, XXIV International Conference on Statistical Physics of the International Union for Pure and Applied Physics (IUPAP), Cairns, Queensland (19-23 July)
- Professors Jim Williams and Chennupati Jagadish, Organizing Committee, Joint ARNAM/ARCNN Early Career Researcher Workshop, Adelaide (19-23 July)
- Professor Hans Bachor – Program Committee, International Conference on Atomic Physics Student Workshop, Cape Tribulation (21-23 July)
- Professors Ken Baldwin, Hans Bachor – Local Organizing Committee, International Conference on Atomic Physics, Cairns (25-30 July)
- Professor Stephen Buckman – Organising Committee, International Workshop on Slow Positron Beam Techniques, Magnetic Island, Queensland (1-6 August)
- School delegation visit to the Colorado School of Mines; National Renewable Energy Laboratory and the Australian Embassy, Washington DC (29 August - 2 September)
- Professor Hans Bachor – Laserfest: 50 years of Lasers and a Brilliant Future , Macquarie University, Sydney (8 September)
- Professor Barry Luther-Davies - Laserfest: Beaming with Pride, Celebrating 50 Years of Laser Innovation, University of Sydney, Sydney (10 November)
- Professor Hans Bachor – Laserfest: 50 years of Lasers and a Brilliant Future, Questacon, Canberra (19 November)
- Dr Matthew Hole – Chair, Australian ITER Forum, International Thermonuclear Energy Research
- Dr Hark Hoe Tan, Professor Chennupati Jagadish, Organizing Committee, Conference on Optoelectronic and Microelectronic Materials and Devices, Canberra (12-15 December)
- Professor Rod Boswell – President, Australia-France Association of Scientific and Technical Experts Committee, Alliance Française

Research

The Research School of Physics and Engineering (RSPE) is the largest university-based institution in the country for physics research and its applications by some measure, with over 140 academics, 130 general staff and 140 post graduate students.

The School's research thrusts in selected areas of strength cover the entire spectrum from fundamental research (understanding nature) through applied research to pre-commercial development. The research program is built around three "big picture" themes: quantum science and technology; advanced materials and technology, and energy and environmental science and technology.

The School continued to excel in its research performance, with almost 500 journal publications in 2010 and its staff involved in more than 200 major international conferences.

The link between research and teaching is critical to the future of the School and the nation. The School has made a major commitment in using its research strength and scale, together with its unique mix of outstanding researchers, teachers and infrastructure, to developing world leading education programs for gifted students that link directly to postgraduate research study. The research and teaching links are not only confined to the Physics discipline but have significant involvement with Engineering in CECS and in other science disciplines in CPMS and CMBE.

Professor Ken Baldwin, Deputy Director (Research) is also Deputy Director of the Australian Research Council Centre of Excellence for Quantum-Atom Optics and Professor in the Atomic and Molecular Physics Laboratories.

RSPE is comprised of nine research departments. A brief description of each department is detailed in the following pages as well as a list of staff dedicated to that area.

- **Applied Mathematics**
- **Atomic & Molecular Physics Laboratories**
- **Electronic Materials Engineering**
- **Laser Physics**
- **Nonlinear Physics**
- **Nuclear Physics**
- **Plasma Research Laboratory**
- **Quantum Science**
- **Theoretical Physics**

Applied Mathematics

Dr Vince Craig

Condensed matter and materials research dominates the research performed in the Department but we are notoriously difficult to pigeon-hole as the range of research programs currently underway are numerous and diverse; for example, statistical mechanical studies of liquids at interfaces, specific ion effects in soft matter, modelling and experiments of multiphase flow properties of oil-bearing rocks, tomographic imaging of fossils, nanobubbles for cleaning, low dimensional geometry and topology as structure descriptors and studies of networks and are all part of the department's ongoing research programs. This large portfolio of research is possible due to our strong network of collaborators around the world and the contribution of individuals in the Department to areas outside of their core areas of interest.

A significant part of the Department's effort has been funded by a large international consortium of oil and gas companies and the Department has recently spun-off a start-up company, Digicore, to service a strong and growing worldwide demand for X-Ray CT experiments and analysis of rock cores.

We are also commercializing a puzzle toy that has developed from one of the long-term research themes of the Department.

Australian National University

Academic Staff

Heads of Department
Vince Craig PhD, ARC FF (from July)
Mark Knackstedt BSc Columbia, PhD Rice (until July)

Professors
Stephen Hyde PhD Monash, ARC FF
Mark Knackstedt BSc Columbia, PhD Rice
David Williams BSc Sydney, PhD Cambridge

Senior Fellows
Tomaso Aste DipHons Genova, PhD Milan
Vince Craig PhD, ARC FT
Tim Senden PhD
Adrian Sheppard BSc Adelaide, PhD

Research Fellows
Lilliana De Campo PhD Graz
Andrew Fogden PhD Docent Lund
David King BSc
Shannon Notley PhD
Drew Parsons PhD
Vanessa Robins PhD Colorado
Ross Stephens PhD Sydney
Arthur Sakellariou PhD Melbourne
Rob Sok BSc PhD Groningen
Trond Varslot PhD NTNU

Postdoctoral Fellows
Nicolas Francois PhD Bordeaux (from September)
Anthony Jones PhD (until September)
Andrew Kingston PhD Monash
Shane Latham PhD UQ
Guangming Liu PhD China
Mahyar Madadi BSc Tehran, PhD IASBS
Glenn Myers PhD Monash
Mohammad Saadatfar PhD (from November)
Vincent Tariel PhD Ecole Polytechnique (from July)
Peter Wood PhD Flinders (until June)

General Staff

Technical, Administrative & IT Officers
Holger Averdunk
Anthony Hyde AssocIE
Janet James (until July)
Jill Middleton
Tim Sawkins
Paul Veldkamp BSc BEc

Departmental Administrator
Margo Davies DipDent Tasmania

Visiting Fellows

Dr Christoph Arns, UNSW
Dr Ji-Youn Arns, UNSW
Dr Judith Caton
Mr Arthur Davies
Dr Gareth Delaney
Dr Tiziana Di Matteo
Ms Christine Henry
Prof Stjepan Marcelja, University of Rochester
Dr Yasmin Melean, University of Venezuela
Prof Norman Morrow, University of Wyoming
Prof Barry Ninham
Mr Jafar Qajar, UNSW
Dr Ewa Radlinksa
Mr Rodney Urquhart

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Atomic & Molecular Physics Laboratories

Prof Stephen Buckman

The Atomic and Molecular Physics Laboratories are engaged in a broad range of experimental, theoretical and computational studies of the interaction of electrons, positrons, and photons with atoms, molecules and solids, in order both to further our knowledge of fundamental physical and chemical processes, and to provide essential information that is critical to applications in other scientific disciplines, technology, and the environment.

The Laboratories research activities include Photon interactions: VUV/XUV laser spectroscopy, laser photodetachment and photofragment spectroscopy, computational molecular physics, computational planetary atmospheres, computational multiple photo ionization); Positron and electron interactions: low-energy positron and electron physics, materials studies with positrons, (e-2e) studies of gases, Electron Momentum Spectroscopy studies of gases and solids, and computational studies of charged particle interactions; and Quantum-Atom Optics: Bose Einstein condensation studies of helium atoms, atom manipulation, experimental tests of QED theory, and quantum-atom optics.

The Laboratories also host two Australian Research Council Centres of Excellence: the Australian Research Council Centre of Excellence for Quantum-Atom Optics (ACQAO), which plays a leading role in the study of the quantum properties of Bose-Einstein condensates and atom lasers via insights gained from quantum optics; and the Australian Research Council Centre of Excellence for Antimatter-Matter Studies (CAMS), whose experimental and theoretical program is based on the study of the interaction of positrons and electrons with matter.

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Academic Staff

Professors and Heads of Laboratories
Brenton Lewis PhD DSc Adelaide, C Phys, FInstP, FAPS, FOSA, FAIP (until June)
Stephen Buckman BSc PhD Flinders, FAPS, FAIP, FInstP (from July)

Professors
Kenneth Baldwin MSc, DIC PhD London, FAIP, FInstP, FOSA, FAPS
Anatoli Kheifets BSc PhD St Petersburg, FAPS

Senior Fellows
Stephen Gibson BSc PhD Adelaide
Robert Robson BSc Queensland, DMBoM, PhD, FRMetS (until July)
Maarten Vos MSc PhD Gröningen

Fellows
Julian Lower BSc Adelaide, PhD Flinders (until August)
Franklin Mills BSE Princeton, MS PhD Caltech
James Sullivan BSc PhD
Andrew Truscott BSc PhD Queensland

Research Fellows
Steven Cavanagh BSc PhD Griffith
Robert Dall BSc Queensland PhD
Mitsuhiko Kono MSc KyotoIT, PhD GUAS Tokyo (until February)
Igor Ivanov PhD DSc Moscow

Postdoctoral Fellows
Casten Makochekanwa BSc Zimbabwe, MSc PhD Yamaguchi
Eskender Mume BSc PhD Uppsala (ANSTO)
Selvakumar Sellaiyan BSc PhD (ANSTO)
Daniel Slaughter BSc PhD Flinders (until April)
Michael Went BSc Newcastle, PhD Griffith (until August)

General Staff

Technical Officers
Stephen Battisson AssocDip MechEng CIT
Colin Dedman AssocDip SciInst Bendigo CAE
Ross Tranter

Departmental Administrators
Deborah Bordeau SBM CIT (until June)
Julia Wee BA Sydney, GCM MGSM (from September)

CAMS Chief Operating Officer
Colin Taylor BSc, PhD (UWA) (until July)
Adam Edwards LLB Nottingham, BSc Wollongong, GDM Western Sydney, MAppFin Charles Sturt (from August)

Visiting Fellows

Prof Lewis Chadderton
Em Prof Robert Crompton AM
Dr Mitsuhiko Kono (from March)
Prof Robert McEachran
Em Prof Erich Weigold AM
Prof Robert Robson (from November)

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Electronic Materials Engineering

Prof Robert Elliman

The Department of Electronic Materials Engineering (EME) conducts interdisciplinary research under four broad research themes:

a) materials science and engineering;
b) semiconductor device engineering;
c) nanoscience and nanotechnology; and
d) ion-solid interactions and ion-beam modification of materials.

The strength of its research program is underpinned by core experience and expertise in key aspects of semiconductor materials science, a team of outstanding early to mid-career researchers, enthusiastic graduate students, a strong network of national and international collaborators, and a comprehensive suite of state-of-the-art experimental facilities. The latter are complemented by facilities and staff funded by the NCRIS Australian National Fabrication Facility (ANFF), which is hosted by the Department.

Australian National University

Academic Staff

Professor and Head of Department
Robert Elliman BAppSci MAppSci RMIT, PhD DSc Salford, FAIP, FIP

Distinguished Professor
Chennupati Jagadish MSc PhD Delhi, FAA, FTSE, FAIP, FInstP, FIoN, FIEEE, FAPS, FOSA FSPIE, FECS, FIET, FAAAS, FAVS, ARCFF, ALF

Professor
Jim Williams BSc PhD UNSW, FAA, FAIP, FIEAust, FTSE, FAPS, FMRS

Senior Fellows
Mark Ridgway BSc McM, MSc PhD Queens
Hoe Tan BE Melbourne, PhD
Yin Yin (Jennifer) Wong-Leung* BSc Bristol, PhD

Fellows
Jodie Bradby BAppSc RMIT, PhD
Lan Fu MSc UTSC, PhD
Patrick Kluth DipPhys Dusseldorf, PhD Jülich
Jiandong Ye PhD Nanjing China (from June)

Research Fellows
Leandro Araujo MSc PhD UFRGS Brazil
Almamun Ashrafi MSc PhD Hokkaido
Qiang Gao MS BSc NEU China, PhD
Wen Lei MSc CUG, PhD CAS
Qing Li BSc BNU China, MSc CAS, PhD HKU (until March)

Postdoctoral Fellows
Satyam Bhuyan PhD Iowa State
Suprakit Charnvanichborikarn PhD (from August)
Bianca Haberl PhD (from December)
Tae Hyun Kim PhD
Patrick Parkinson MPhys DPhil Oxon (from July)
Matias Rodriguez PhD
Simon Ruffell MEng Surrey, PhD UWO Canada
Avi Shalav PhD UNSW, MSc DipTchg Massey
David Sprouster PhD (from March)
Dinesh Venkatachalam PhD RMIT, MSc BITS India
Hao Wang MSc Jinan, PhD South China Normal (from September)

**jointly with College of Medicine, Biology & Environment*

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Kidane Belay MSc AAU Ethiopia, PhD
Gregory Jolley PhD (from April)
David Llewellyn (joint CMBE)

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Dane Kelly
Bernie King ONC London
Craig Saint

Departmental Administrator
Scott Yates

ARCNN Manager
Elizabeth Micallef (until September)

ANFF Manager
Fouad Karouta BSc LUB, PhD Perpignan, PhD Montpellier

ANFF Processing Engineers
Xijun Li PhD CAEP
Jie Tian PhD CAEP
Kaushal Vora PhD Latrobe

ANFF Administrator
Jeffrey Kealley

Visiting Fellows

A/Prof Ping Ping Chen, SITP
Professor Neville Fletcher
Dr Haroldo Hattori, ADFA
Dr Stefan Decoster, KUL

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Laser Physics

Prof Barry Luther-Davies

2010 saw the celebrations of the 50th anniversary of the demonstration of the first laser by Theodore Maiman in May 1960. Members of the Laser Physics Centre (LPC) contributed to those celebrations though *Laserfest* events such as public lectures and special symposia at national conferences. In these 50 years lasers have become ubiquitous in science, in medicine and in industry. However, exciting new applications continue to emerge and members of the Laser Physics Centre are at the forefront of this research studying topics spanning fundamental and applied physics and engineering. Generally fundamental questions have been addressed in studies of the interaction of laser light with matter, in materials science, in ultra-high resolution spectroscopy of solids and the manipulation of quantum information. Research of more strategic nature includes work on photorefractive materials on the properties of solitons and other nonlinear waves, on nonlinear optical materials for photonics and quantum technology. Applied research includes the development of novel parametric devices, the production and application of novel waveguides, photonic crystals and other photonic devices. A major achievement during 2010 was the award of funding to two teams in LPC from the ARC Centres of Excellence scheme. From 2011-2017, funding will be received from the Centre for Ultra-high-bandwidth Devices for Optical Systems (CUDOS) for work on photonic devices, whilst work on quantum information processing will be funded from the Centre for Quantum Computing Technology. Research highlights for 2010 have included:

- work on laser trapping and guiding of airborne particles conducted in collaboration with the Non-Linear Physics Centre, was identified as in the 30 most exciting peer-reviewed papers in optics research in 2010;
- a heralded single photon source based on rare-earth doped crystals;
- spectroscopic investigations demonstrated the presence of electron-vibration effects within the electronic levels of the nitrogen-vacancy centre in diamond that give rise to novel optical properties;
- a high gain Tellurium dioxide based Erbium doped waveguide amplifier;
- the first high quality polarisation independent waveguide gratings and nanoimprinted arsenic trisulpide waveguides by nano-imprint lithography;
- broadband third harmonic generation in two-dimensional short-range ordered nonlinear photonic structures;
- experimental investigations on the Cerenkov-type second harmonic generation from a virtual beam and the cascaded nonlinear processes based on this mechanism; and
- high-Q 1D photonic crystal nanocavities in chalcogenide glass waveguides and demonstrated optical bistability.

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Academic Staff

Professor and Head of Department
Barry Luther-Davies PhD S'ton, SIEE, FAIP, ARCFF

Professors
Wieslaw Krolikowski MSc PhD Warsaw
Neil Manson PhD Aberdeen
Andrei Rode PhD Moscow

Senior Fellows
Duk Yong Choi PhD Seoul
Eugene Gamaly PhD Moscow
Steve Madden PhD Imperial College
Matthew Sellars PhD

Research Fellows
Douglas Bulla PhD Sao Paulo (until September)
Cyril Hnatovsky PhD Ottawa
Vladlen Shvedov PhD Taurida National, Ukraine
Rongping Wang PhD CAS

Postdoctoral Fellow
Yan Sheng (from March)

General Staff

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John Bottega
Sukanta Debbarma
Romana Krolikowska
Craig Macleod AssocDip MechEng CIT
Anita Smith BSc Flinders

Departmental Administrator
Belinda Barbour

Visiting Fellows

Dr Graham Atkins
Dr Robbie Charters
Deng Feng Chen
Prof. Mark Humphrey
Dr Dax Kukulj
Dr David Pulford
Ms Joanna Olesiak, WUT, Poland
Dr Anna Samoc
Dr Marek Samoc

Australian National University

Nonlinear Physics

Prof Yuri Kivshar

Nonlinear Physics are engaged in theoretical and experimental interdisciplinary research in a number of diverse areas unified by the general concepts of nonlinear physics and nonlinear photonics. Nonlinear Physics are defined by five major research directions and groups.

The experimental photonics group, led by Dr Dragomir Neshev, undertakes experimental study of linear and nonlinear properties of light propagation and localization in integrated and optically-induced photonic structures including waveguide arrays, photonic lattices, photonic crystals, as well as polychromatic light, nonlinear patterns and self-focusing. In 2010, the group's activities moved towards nonlinear plasmonics, nanophotonics, and the physics of optical metamaterials.

The theoretical photonics group, led by Dr Andrey Sukhorukov undertakes the study of different nonlinear optical systems. Currently, this involves the development of theoretical models and numerical simulations of the propagation of slow light in nonlinear photonic structures with close collaboration with the experimental group. More recently this included the development of novel concepts of light control in periodically modulated waveguide arrays and optomechanics.

The singular photonics group, led by Dr Anton Desyatnikov undertakes both theoretical and experimental studies of the light beams with angular momentum, optical vortices, optical polarization singularities, and vortex lattices. The new activities in 2010 are associated with the physics of light localization and propagation in nematic liquid crystals.

The nonlinear matter waves and quantum-atom optics group, led by Dr Elena Ostrovskaya, is involved in the development of novel theoretical models, analytical and numerical studies of matter waves and nonlinear atom-optics problems, cold atoms, Bose-Einstein condensates in optical lattices and magnetic waveguides, atom lasers, quantum optics of nonclassical and squeezed light. More recently, the group developed several novel concepts, including the novel application of the ratchet effect to control the dynamics of matter-wave solitons in oscillating potentials.

The research on composite structures and left-handed metamaterials, led by Dr Ilya Shadrivov is in directions involving the phenomenon of negative refraction, nonlinear metamaterials and left-handed superlattices, optical cloaking and transformation optics. Recently, the group developed novel concepts for tunable metamaterials, and supported them by a series of experimental observations.

Australian National University

Academic Staff

Professor and Head of Department
Yuri Kivshar BSc PhD Kharkov, FAIP, FOSA, FAA, FAPS, ARC Federation Fellow

Senior Fellows
Andrei Lavrynenko PhD Belarus (September-October)

Fellows
Anton Desyatnikov PhD Moscow
Dragomir Neshev MSc PhD Sofia
Elena Ostrovskaya MSc Moscow, PhD
Alexander Savin PhD Moscow (January and from November)
Andrey Sukhorukov MSc Moscow, PhD

Research Fellows
Tristram Alexander PhD (until August)
Andrey Miroshnichenko PhD Dresden
David Powell PhD Monash
Ilya Shadrivov PhD

Postdoctoral Fellows
Ivan Garanovich PhD
Yana Izdebskaya PhD Simferopol
Mikhail Lapin PhD Osnabruck (from December)
Ivan Maksymov PhD Kharkov (from September)
Michal Matuszewski PhD Warsaw
Aliaksandr Minovich PhD (from October)
*Thomas White PhD
Zhiyong Xu PhD Barcelona

General Staff

Research Assistants
Artur Davoyan (from November)
Sangwoo Ha (March to July)
Aliaksandr Minovich (July to October)

Departmental Administrator
Kathy Hicks AdvDipAcct CIT

Visiting Fellows

Prof Sergey Dmitriev, RAS, Russia
Dr Volodymyr Lashkin, NASU
Dr Yuriy Rubo, UNAM, Mexico
Prof Jose Salgueiro, UVL, Spain
Prof Roland Schiek, UASR, Germany
Dr Rangcao Yang, Shanxi University

**jointly with Laser Physics*

Australian National University

Nuclear Physics

Prof David Hinde

The Department of Nuclear Physics carries out fundamental studies in experimental Nuclear Physics as well as developing and applying nuclear techniques for basic studies in interdisciplinary research, much of it accelerator-based. The Heavy Ion Accelerator Facility, maintained, developed and operated by the Department, provides a range of energetic heavy-ion beams produced with a suite of ion sources and accelerated by a 15 million-volt tandem electrostatic accelerator and a superconducting linear accelerator. Beams are delivered to ten separate beam-lines, each dedicated to specialized detector instrumentation.

The facilities are used by staff and students of the Department as well as external users from other Australian universities and institutions, and international scientists from a number of laboratories. Scientists from the United Kingdom, for example, have formal access to the facilities through the ANU-STFC agreement.

The Department and its facilities constitute the main laboratory in Australia for accelerator-based research and training in Nuclear Physics. It contributes to undergraduate and postgraduate training at honours, masters and PhD levels, conducts expert workshops in radiation physics and accelerator techniques, and manages a Master of Nuclear Science by coursework degree that was instituted in 2007. To complement the research carried out on the local facilities, Department members collaborate with international scientists and utilize major experimental facilities overseas, gaining access through competitive processes.

Current nuclear research areas of interest cover nuclear spectroscopy and the study of exotic nuclear quantum states heavy-ion reaction dynamics including nuclear fusion and nuclear fission, and reactions of weakly-bound nuclei, and the study and use of hyperfine interactions for moment measurements and for elucidating nuclear science. Nuclear techniques and heavy-ion detection techniques are used in a range of materials science applications including materials modification and characterization. The technique of Accelerator Mass Spectrometry is applied to a broad range of topics including research and applications in archaeology, hydrology, climate change, soil erosion and trace isotopic analyses applied to environmental pollution studies, both nuclear and non-nuclear.

Australian National University

Academic Staff

Professor and Head of Department
David Hinde BSc Manchester, PhD, FAIP, FInstP, FAA

Professors
Mahananda Dasgupta MSc Rajasthan, PhD Bombay, FAIP
George Dracoulis PhD Melbourne, FAIP FAPS, Hon FRSNZ, FAA (retired June)
Keith Fifield MSc Auckland, PhD Penn, FAIP
Andrew Stuchbery PhD Melbourne, FAIP

Fellows
Tibor Kibédi PhD Debrecen
Gregory Lane PhD
Stephen Tims PhD Melbourne

Research Fellows
Rickard Du Rietz PhD Lund
Chengjian Lin BSc Sichuan, MSc GSNM, DSc CIAE (until October)
Cédric Simenel MSc Paris, PhD Caen

Postdoctoral Fellows
Maurits Evers PhD (from October)

General Staff

Manager Accelerator Operations
Nikolai Lobanov BSc Moscow, PhD St Petersburg
David Weisser PhD Minn, FAIP

Technical & IT Officers
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Alan Cooper, AssDip MechEng CIT
Gareth Crook
Gordon Foote BSc Lond, PhD
Angus Gratton
Alan Harding
Justin Heighway, AssDip AppSci CIT
Tom Kitchen, AdvDip Mech Eng CIT
Lorenzo Lariosa
Alistair Muirhead
Dimitrios Tsifakis

Departmental Administrator
Petra Rickman

Visiting Fellows

Emeritus Prof George Dracoulis
Dr Tezer Esat, ANSTO
Dr Toshiyuki Fujioka, ANSTO
Dr Kushal Kalita, Gauhati University
Dr Heiko Timmers, ADFA

Plasma Research Laboratory

Plasma Research Laboratory conducts research in two main areas: toroidal and space plasma.

Prof John Howard

Toroidal Plasma research embraces a multiplicity of activities associated with the physics of magnetised plasma, electromagnetics, remote sensing and inverse methods. The Department operates the Australian Plasma Fusion Research Facility which is centred on the H-1 heliac, an innovative plasma confinement device with flexible magnetic geometry.
As a national focus for fusion-science research, collaboration and education, the Facility accommodates the study of basic plasma physics, advanced magnetic configurations and remote measurement systems for future fusion power plants. Advanced data mining techniques and novel remote-sensing technologies pioneered on the heliac, are now being applied to the world's largest fusion devices in the US, Asia and Europe. This year saw the commencement of the 4-year, $7M upgrade of heating, vacuum and diagnostic H-1 infrastructure.

The Plasma Theory and Modeling group focuses on the fundamental physics and the modelling of magnetic confinement fusion energy devices. The group has active research links with the Culham Centre for Fusion Energy, (England) Princeton Plasma Physics Laboratory (USA) and a number of other major fusion research institutes in both Europe and Asia. The Physics of Fluids group undertakes research into physics of fluid turbulence, nonlinear wave phenomena and rotating fluids, including applications to environmental and atmospheric physics, weather and climate. The BushLAN project aims at providing wireless broadband to remote areas using distributed MIMO (Multiple transmitter and multiple receiver) techniques on the band I TV spectrum. An important research focus is the development of protocols to handle universal synchronization on the distributed MIMO network.

Dr Christine Charles

Space Plasma, Power and Propulsion research conducts work on both basic and applied plasma physics. The core research areas involve experimental and theoretical aspects of expanding radiofrequency helicon plasmas applied to space science, space propulsion and hydrogen fuel cells. The discovery of current free double layers and of the Helicon Double Layer Thruster led to a contract with EADS/ASTRIUM, Europe's largest Space company and an Australian Research Council Linkage grant. Work includes thrust measurement, prototype space qualification and plasma modeling. Furthermore, the laboratory double layers are being applied to understanding space plasma physics such as the magnetic funnels of the solar corona and the Earth's aurora. A large contract has been signed with LAM Research Corporation in Silicon Valley for the further development of an SP3 invention to be used for the next generation of plasma etching systems for microelectronics. This opens a new and exciting career path for students and researchers alike.

Australian National University

Academic Staff

Professor and Head, Toroidal Plasma
John Howard BSc PhD Sydney, FInstP

Head, Space Plasma, Power and Propulsion
Christine Charles BEng MSc Rennes, PhD Hab Orléans, BMus

Director, Australian Plasma Fusion Research Facility
Boyd Blackwell BSc PhD Sydney

Professors
Roderick Boswell BSc Adelaide, PhD Flinders, FTSE, FAPS
Robert Dewar MSc Melbourne, PhD Princeton, FAIP, FAPS, FAA
Michael Shats MSc KPI, PhD GPI Moscow

Senior Fellows
Boyd Blackwell BSc PhD Sydney
Christine Charles BEng MSc Rennes, PhD Hab Orléans, BMus

Fellows
Gerard Borg BSc PhD Sydney
Matthew Hole BSc BE PhD Sydney

Research Fellows
Cormac Corr PhD Belfast
Shantanu Padhi PhD Delhi
Hua Xia, MSc Chongquing, PhD
Shuiliang Ma PhD (from February)

Postdoctoral Fellow
Gregory von Nessi BSc Massachusetts PhD
Michael Fitzgerald PhD (from June)

General Staff

Research Engineer
Horst Punzmann BSc Regensburg, PhD

Technical Officers
Peter Alexander
Mark Gwynneth
David Pretty PhD
John Wach BAppSci CAE Ball, GradDipEl CCAE

Departmental Administrator
Maxine Hewitt BA UC

Visiting Fellows

Dr Sudeep Bhattacharjee, IIT
Dr Frank Detering
Dr Andreas Fhager, CUT
Emeritus Prof Sydney Hamberger
Dr Jay Larson, ANL
Dr Kazunori Takahashi, Iwate University

Australian National University

Quantum Science

Prof David McClelland

The experimental research programs in the Department of Quantum Science cover a broad range of activities linked by the quest to investigate the interface between the quantum and classical realms, to probe the quantum mechanical limits to measurement, to develop precision measurement using quantum sources, and to use these concepts in technological applications. These activities are pursued in three programs.

Quantum Optics: The quantum optics group aims to exploit quantum mechanical properties of laser field for metrological and information technology applications. A new centre will be

Atom Optics: The atom optics program has focused on the development of the atom laser as a useful tool for investigations in fundamental physics and in precision measurement. In 2009, the group developed a stable atomic local oscillator and quantum noise limited atom detection with the aim of producing and studying the first squeezed atom laser and making measurements with atoms at sensitivities that exceed the atomic shot noise limit. The atom optics group has recently added a major new research direction, to use classical and squeezed atom sources to develop high precision, field deployable, inertial sensors for rotation, acceleration, gravity and its gradients.

Gravitational Wave Detection: Gravitational wave detectors need to achieve a sensitivity to length change to better than 1 part in 1023! At this sensitivity, giant kilometer scale laser interferometers are limited by quantum noise on the readout laser over a large part of their signal band. The experimental gravity group is developing quantum optical techniques to reach and beat these limits.

The Centre for Gravitational Physics (CGP) undertakes research on many aspects of gravity, from mathematical relativity to searching for gravitational waves to developing technology for future generations of ground and space based gravitational wave detectors. CGP is also very active in exploiting spin offs from precision metrology into areas such as fibre sensing for oil and gas monitoring and satellite separation sensing for Earth Observations from Space. In 2010, the CGP won an Australia Space Research Program grant to develop technology for the next Gravity Recovery and Climate Experiment space mission.

Australian National University

Academic Staff

Professor and Head of Department
David McClelland MSc UWA, PhD Otago

Professors
Hans Bachor PhD Hannover (until August)
John Close PhD Berkeley
Ping Koy Lam BSc Auckland, PhD
Susan Scott BSc Melbourne, PhD Adelaide

Senior Fellows
Joseph Hope PhD
Craig Savage PhD Waikato

Fellows
Nicholas Robins PhD
Daniel Shaddock PhD

Research Fellows
Benjamin Buchler PhD
Vincent Daria PhD
Andre de Carvalho PhD UFRJ Brazil
Cristina Figl PhD Hannover (until September)
Mattias Johnsson PhD Canterbury
Thomas Symul PhD CNET
Bram Slagmolen PhD
Jiri Janousek PhD DTU Denmark

Postdoctoral Fellows
Julien Bernu PhD ENS France
Jong Chow BSEE Vermont, PhD
Boris Hage PhD LUH Germany
Ra Inta PhD UNSW
John Miller PhD Glasgow

General Staff

Head Technical Officer
Andrew Papworth

Technical Officers
Neil Devlin
James Dickson
Shane Grieves
Neil Hinchey
Paul McNamara
Paul Tant

Departmental Administrators
Huma Cheema (until March)
Laura Walmsley (from May)

Assistant Administrator
Gaye Burrato

Visiting Fellows

Dr Mark Andrews
Prof Hans Bachor (from August)
Dr Peter Riggs
Prof John Sandeman

Australian National University

Theoretical Physics

Prof Murray Batchelor

The Department of Theoretical Physics is one of the university's founding departments. The core research areas involve theoretical aspects of mathematical physics, condensed matter physics and optical sciences.

Research in the mathematical physics group is centred on the two related areas of string theory and integrable models. The string theory team is led by Professor Peter Bouwknegt. The main area of research focuses on the mathematical structures underlying string theory, in particular on duality symmetries and generalizations of geometry. Dr David Ridout from University of Montreal joined the Department in October on an ARC Research Fellowship to work on conformal field theory.

The integrable model team is led by Professor Murray Batchelor, Professor Vladimir Bazhanov, Dr Xiwen Guan and Dr Vladimir Mangazeev. Research is based on the development of theoretical models and methods of analysis for the exact physical description of fundamental interacting systems in statistical mechanics and quantum field theory. It includes the study of phase transitions and magnetic ordering in low-dimensional spin systems and cold atomic gases, along with the development of new approaches and applications in quantum geometry and computational many-body physics.

Staff and students were heavily involved in STATPHYS 24, the XXIV International Conference on Statistical Physics of the International Union for Pure and Applied Physics (IUPAP), held in Cairns on 19-23 July.

The optical sciences group is led by Professors Nail Akhmediev and John Love and involves studies in nonlinear optics and soliton theory. The group develops basic theory of solitons for optical systems that includes modern all-optical information transmission lines and ultra-short pulse lasers. The group is strongly linked to experimental photonics groups within the School, across campus, and to international research laboratories. Professors Akhmediev's group gained considerable publicity for their work on rogue waves.

Research activity of Adjunct Professor Mukunda Das includes the theory of electron transport and noise in mesoscopic systems, high-temperature superconductivity, density functional theory of disordered systems and strongly correlated electrons.

Academic Staff

Professor and Head of Department
Murray Batchelor BSc UNSW, PhD, FAIP, FAustMS, FInstP

Professors
Nail Akhmediev MS PhD DSc Moscow, FOSA
Vladimir Bazhanov PhD Serpukhov FAA
Pier Bouwknegt MSc Utrecht, PhD Amsterdam, FAIP, FAustMS
John Love MA Cambridge, MA DPhil DSc Oxford

Fellows
Adrian Ankiewicz BSc BE UNSW, PhD
Xi-Wen Guan BSc Qufu, MSc Sichuan, PhD Jilin
Vladimir Mangazeev MSc Moscow, PhD Serpukhov
David Ridout BSc, MSc UWA PHD Adelaide (from October)

Postdoctoral Fellow
David Baraglia BSc Adelaide, PhD Oxford

General Staff

Departmental Administrator
Juan (Lucia) Lu (from February)

Visiting Fellows

Professor Helen Au-Yang, Oklahoma State University
Dr Rowena Ball
Adjunct Professor Mukunda Das
Dr Michael Hall
Professor Jacques Perk, Oklahoma State University
Dr Brian Robson
Dr Lindsay Tassie
Professor Paul Wiegmann, University of Chicago
Professor JianBo Zhang, Zhejiang University

Education

The Research School of Physics and Engineering provides undergraduate and graduate physics education and supports research and innovation in physics education. In 2010 there were 133 postgraduate (PhD/MPhil) students current during the year, with 932 undergraduate enrolments in courses (Y1 497, Y2 188, Y3 228, Y4 19) and 65 student visitors from external institutions. The school boasts a number of recipients of local and national teaching awards and competitive grants.

The link between research and teaching is critical to the future of the School and the nation. The School has made a major commitment in using its research strength and scale, together with its unique mix of outstanding researchers, teachers and infrastructure, to developing world leading education programs for gifted students that link directly to postgraduate research study. The research and teaching links are not only confined to the Physics discipline but have significant involvement with Engineering in CECS and in other science disciplines in CPMS and CMBE.

Professor David McClelland, Deputy Director (Education); is also Head of the Department of Quantum Science, and the Physics Education Centre (PEC), which was established in 2009 to coordinate education across the School.

Whilst the Department of Quantum Science continued to provide the most teachers, academics from all nine research departments now contribute to the undergraduate teaching program as well as supervising graduate students. A number of areas offer postgraduate coursework degrees.

The Physics Education Centre (PEC) enhances the recruitment of high quality students into physical sciences; increase the education involvement of outstanding researchers in the School, particularly early career researchers; mentor/train outstanding teaching academics for the ANU and other universities from the large base of outstanding academics in the School; facilitate and deepen interaction between researchers and students; provide support and training for secondary teachers, at the national level; increase the number of bids for national teaching and learning grants; and develop innovative teaching methods and materials.

In 2010 Dr Craig Savage lead a team of four year coordinators who ensured the delivery of a well functioning and integrated undergraduate program. Professor Neil Manson continued in his role as Convenor of School's higher degree research program. Reports from these areas can be found on the following pages.

Australian National University

Staff who contributed to teaching in 2010

Professors
Hans Bachor PhD Hannover (until August)
Pier Bouwknegt MSc Utrecht, PhD Amsterdam, FAIP, FAustMS
Stephen Buckman BSc PhD Flinders, FAPS, FAIP, FInstP
John Close PhD Berkeley
Mahananda Dasgupta MSc Rajasthan, PhD Bombay, FAIP
George Dracoulis BSc PhD Melbourne
Denis Evans BSc Sydney, PhD (RSC)
Keith Fifield, MSc Auckland, PhD Penn
Ian Jackson BSc UQ, PhD (RSES)
John Love MA Cambridge, MA DSc Oxford
Ping Koy Lam BSc Auckland, PhD
Neil Manson PhD Aberdeen
Susan Scott BSc Melbourne, PhD Adelaide
Andrew Stuchbery BSc PhD Melbourne
David Williams BSc Sydney, PhD Cambridge

Senior Fellows / Readers
Paul Francis BA PhD Cambridge (RSAA)
Matthew Hole BE PhD Sydney
Joseph Hope PhD
Tibor Kibedi, PhD Debrecen
Craig Savage PhD Waikato
Matthew Sellars PhD
Maarten Vos MSc PhD Gröningen

Fellows / Senior Lecturers
Andre Carvalho MSc PhD UFRJ
Gregory Lane BSc PhD
Frank Mills BSE Princeton, MS PhD Caltech
Dragomir Neshev PhD Sofia
Nicholas Robins BSc PhD
Stephen Tims BSc PhD Melbourne
Anna Wilson BSc Bristol, PhD Liverpool

Research Fellows / Lecturers
Tristam Alexander PhD
Benjamin Buchler PhD
Cormac Corr PhD Belfast
Vincent Daria PhD Osaka
Darren Goossens PhD Monash (RSC)
Graham Hughes PhD (RSES)
Patrick Kluth PhD Jülich
Drew Parsons PhD Moscow
Simon Ruffell PhD UWO Canada
Adrian Sheppard BSc Adelaide, PhD
Thomas Symul PhD CNET LAB
Arthur Sakellariou BSc PhD Melbourne
Hrvoje Tkalcic PhD UCB (RSES)

Postdoctoral Fellows
Jong Chow PhD
Mahyar Madadi PhD
Trond Varslott PhD NTNU

Technical Staff
Mika Kohonen
Andrew Papworth
David Weisser

Undergraduate Studies

Dr Craig Savage
Associate Director (Undergraduate Studies)

2010 was notable for its record first year physics student numbers, the continuing excellence of the later year laboratory programs, and the teaching awards won by several staff members. Other healthy developments included: the increasing range of School staff participating in educational activities, and the healthy numbers in our coursework masters programs: Master of Photonics and Master of Nuclear Science. Drs Darren Goossens and Joe Hope won ANU College of Physical and Mathematical Sciences Awards for Teaching Excellence.

Among the innovations within the Physics Education Centre were the collaborative delivery of the honours electromagnetism course with the University of Western Australia. This program is growing, with Monash University expected to participate in 2011. First year physics explored ways to move beyond the use of clickers in lectures and hence trialed web 2 technology in second semester Advanced Physics. This will expand to a trial of iPads in lectures in 2011.

Postgraduate Studies

Professor Neil Manson
Associate Director (Postgraduate Studies)

The School has 142 postgraduate students (PhD and MPhil) and of those 91 are residents of Australia or New Zealand and 51 are international. 24 students enrolled during 2010 whereas 18 completed their program. In addition there were over 60 visiting students completing part of their higher degree program within the School.

The 2010 J G Crawford prize for the best ANU thesis in the Physical Sciences was awarded to Dr Ivan Garanovich from the Nonlinear Physic Centre for thesis titled *Light control in modulated photonic lattices.* Seiji Armstrong, a student within Department of Quantum Science, was awarded the Australia Asia Prime Minister's Award to undertake research in Japan. Seiji works within the Quantum Imaging group associated with the ARC Centre for Excellence in Quantum-Atom Optics.

In addition many of the postgraduate students from within the School received awards for best talk or poster at local and international conferences

Australian National University

ANU Students

(PhD, MPhil, Honours, PhB, ANU Summer Scholars)

Abdullaev, Jasur
Abdullatif, Raden Farzand
Addison-Jones, Jennifer
Afra, Boshra
Ahlefeldt, Rose
Alam, Imam
Anderson, Emma
Anderson, Peter
Altin, Paul
Armstrong, Seiji
Barrido, Jason
Barry, Richard
Barter, Thomas
Bartholomew, John
Bayu, Aji Leonardus
Beavan, Sarah
Bennet, Francis
Bently, Chris
Bertram, Jason
Bierschenk, Thomas
Bimo, Leonardus
Botman, David
Brown, Michael
Burgess, Andrew
Burgess, Timothy
Byrne, David
Byron, Lesa
Caballero-Benitez, Santiago
Caneses, Juan
Campbell, Geoff
Caradonna, Peter
Castle, Loch
Castle, Toen
Chang, Lei
Chang, Wonkeun
Charnvanichborikarn, Supakit
Chen, Anderson
Chrzanowski, Helen
Chong, Wang
Chua, Sheon
Chung, Tam
Collin, Gabriel
Cox, Wesley
Crawford, Duncan
Dann, Rodney
Davoyan, Artur
Debs, John
Dedrick, James
Deniz, Vivianne
Dennis, Graham
Deshmukh, Sarita
Deshpande, Shriniwas
Devine, Natasha
Devlin, Alan
Dixon, Sam
Doering, Daniel
Dong, Yafei
Dudalev, Mikhail
Duering, Malte
Dugne, Julien
East, Michael
Eckerskorn, Niko
Edwards, Michael
Evans, Myfanwy
Evans, Robert
Everett, Jesse
Evers, Maurits
Farrington, Tom
Fraser, Michael
Freeman, Darren
Gai, Xin
Ganesan, Rajesh
Garretson, Joshua
Gayford, Matt
Gibson, Ashley
Gill, Michael
Graham, Anthony
Grosse, Nicolai
Ha, Sangwoo
Haberl, Bianca
Hammoud, Mohamad
Han, Ting
Hannam, Kirsty
Haskey, Shaun
Heays, Alan
Hedges, Morgan
Heenan, Kimberley
Heffernan, Patrick
Herrald, Nick
Hodgman, Sean
Holmes, Ryan
Horsley, Andrew
Hoo, Weeteck
Hosseini, Mahdi
Howard, Shaun
Hua, Quang-Tri
Hudspeth, Jessica
Hush, Michael
Hussain, Zohair
James, Leslie
Jeppesen, Matthew
Jiang, Nian (Jenny)
Jin Zhe (Kim)
Jones, Adric
Joyce, Hannah
Kalinowski, Ksawery
Kang, Jung-Hyun
Kedziora, David
Kels, Andrew
Kim, Jong
Kim, Tae Hyun
Kim, Min-Chul
King, Eleanor
Kong, Qian
Kowarsky, Mark
Kuffner, Peter
Kumar, Munish
Lade, Steven
Lafleur, Trevor
Lai, Man Chun
Lal, Rajeev
Lam, Timothy
Lane, Michael
Lebedeva, Evgenia
Lee, Jen-Yee
Lee, Boon Albert
Lee, Boon Quan
Lei, Chang
Leslie, Russell
Lewis, Benjamin
Lewis, Peter
Li, Luhua
Lim, Felicity
Liu, Danyu
Liu, Wei
Liu, Ya-Chi
Lu, Haofeng
Luong, Duc Huy
Lysevych, Mykhaylo
Machacek, Joshua
Manning, Andrew
Palihawadana, Prasanga
Marzban, Sara
McDonald, Gordon
Masters, Vanessa
McGann, Mathew
McKerracher, Ian
McMurtrie, Roger
McNeil, Steven
Mills, Ruth
Minovich, Alexander
Morizur, Jean-François
Mow Lowry, Conor

Australian National University

Moylan, Andrew
Mullavey, Adam
Natali, Sonny
Nawaz, Muhammad
Nguyen, Thanh
Nicholls, Lachlan
Noble, Bill
Nolan, Anthony
Paiman, Suriati
Paulraj, Joseph
Pinson, Matthew
Poldy, Rachel
Pozzi, Francesco
Prakash, Prasai
Prasad, Amrita
Pyke, Daniel
Rabeling, David
Rafiei, Ramin
Ramesh, Vidya
Ramsden, Stuart
Rancic, Milos
Read, Jesse
Reid, Nicolai
Roberts, Jason
Robertson, Kalman
Rofi'i, Imam
Rogers, Jeffrey
Rogers, Lachlan
Roy, Indrajit
Samuel, Cameron
Sammut, Steven
Satterthwaite, Matthew
Schneider-Kennedy, Stefan
Shelly, Sonam
Shilpi, Saini
Simpson, Mark
Smith, Madeleine
Smith, Michael
Solntsev, Alexander
Song, Tao
Song, Won-Min
Sparkes, Benjamin
Sprouster, David
Stefszky, Michael
Stevenson, Robin
Summers, Paul
Sun, Yue
Supratman, Vincent
Sutton, Andrew
Swifte, Joshua
Szigeti, Stuart
Tattersall, Wade
Tayati, Ponlawat
Teng, Ying Ying
Teniswood, Clara
Thapar, Nandika
Thorman, Alex
Threlfall, Philip
Valbuena , Johnny
Vickers, Byron
Vran, Alexander
Vu, Khu Tri
Wade, Andrew
Wagner, Katherine
Wakhle, Aditya
Walsh, Rick
Wang, He
Wang, Ting
Wang, Wenji
Wang, Yu
Weed, Ryan
Weekes, Chris
Werner, Justin
Wette, Karl
Whale, Benjamin
Whitfield, Ross
Wong, Sherman
Wu, Ju-Kuei
Wuchenich, Danielle
Xiao, Allan
Yan, S
Yi, Seeongjoon
Yu, Jun
Yuen, Sebastian
Zhang, Bonnie
Zhong, Manjin (Grace)

Australian National University

Visiting Students

(includes Occupational Trainees and Summer Scholars from external institutions)

Alizadeh, Mehdi	University of New South Wales
Amuli, Ines	Polytech Clermont-Ferrand, France
Andersson, Linnea	Stockholm University, Sweden
Baalrud, Scott	University of Wisconsin-Madison, USA
Barmaz, David	Ecole Polytechnique Federale de Lausanne, Switzerland
Carretero-Palacios, Sol	Universidad de Zaragoza, Spain
Chen, Jiang Bo	Beijing University of Technology, China
Chen, Kenneth	Chinese University of Hong Kong
Churton, Blake	University of Sydney
De Cesar, Mario	Second University of Naples, Italy
Duignan, Tim	University of Wellington, New Zealand
Eckerskorn, Niko	University of Bonn, Germany
Frost, William	University of Canterbury, New Zealand
Gao, Qian	Shanghai Jiao Tong University
Ghous, Abid	University of New South Wales
Hansson, Tobias	Chalmers University of Technology, Sweden
Haslinger, Franz	University of Applied Sciences Regensburg, Germany
He, Peng	Chinese Academy of Sciences, China
Henderson, Stuart	University of Strathclyde, United Kingdom
Hile, Sam	University of New South Wales
Jian, Pu	Ecole Normale Superieure, France
Johnstone, Shaun	Monash University
Kedziora, David	University of Sydney
Kessler, Patrick	Bonn University, Germany
King, Eleanor	Adelaide University
Kroesen, Sebastian	Westfälische Wilhelms Universität Münster, Germany
Lechene, Balthazar	Ecole Polytechnique, France
Ledingham, Patrick	University of Otago, New Zealand
Li, King-Fai	California Institute of Technology, USA
Li, Ziyuan	University of New South Wales (ADFA)
Ling, Julia	Princeton University, United States
Lu, Jian	Fudan University, China
Mahony, Caitlin	University of Melbourne
Majdi, Saman	Uppsala University, Sweden
Malik, Anwaar	University of New South Wales (ADFA)
Margarin, Vincent	ENSEITA, France
Margenot, Mathieu	University of Orleans, France
Messing, Maria	Uppsala University, Sweden
Michl, Matthias	University of Applied Sciences Regensburg, Germany
Nute, Jonathan	University of Nottingham, United Kingdom
Palalani, Nyaladzi	University of Botswana, Africa
Parrain, David	Ecole Normale Superieure, France
Qajar, Jafar	University of New South Wales
Qi, Xinyuan	Applied Physics School, China
Raihan, Rexaur	University of New South Wales (ADFA)
Reed, Matthew	University of Surrey, United Kingdom
Saha, Shibu	University of Delhi, India
Sax, Christian	University of Applied Sciences Regensburg, Germany
Schroder, Timo	Max Planck Institute, Germany
Schroeter, Lina	University of New Zealand
Simpson, Mark	University of Wellington, New Zealand

Sliski, David	University of Massachusetts, United States
Stumpp, Stephan	University of Augsburg, Germany
Sun, Wen	University of Queensland
Swan, Tom	University of Surrey, United Kingdom
Sykora, Benedikt	University of Augsburg, Germany
Terhalle, Bernd	Westfälische Wilhelms Universität Münster, Germany
Thapar, Nandika	University of Wollongong
Turner, Sam	University of Wellington, New Zealand
Uhe, Peter	Monash University
Villis, Byron	University of Melbourne
Wagner, Kerstin	University of Augsburg, Germany
Wang, Wenjie	Nankai University, China
Yan, Kunlun	Chinese Academy of Sciences, China
Yu, Hongyi	Chinese Academy of Sciences, China

Australian National University

Research Highlights

under separate cover

Australian National University

Publications

Book (2 publications)

Ninham B, Lo Nostro P
Molecular Forces and Self Assembly: In Colloid, Nano Sciences and Biology
Cambridge University Press, UK (2010) 359
Simenel C, Lacroix D, Avez B
Quantum Many-Body Dynamics: Applications to Nuclear Reactions
VDM Verlag, Germany (2010) 87

Book Chapter (11 publications)

Bazhanov V, Mangazeev V, Sergeev S
QUANTUM GEOMETRY OF 3-DIMENSIONAL LATTICES AND TETRAHEDRON EQUATION
in XVIth International Congress on Mathematical Physics 2009, World Scientific Publishing Company, Prague (2010) 23-44
Brudzynski S, Fletcher N
Rat ultrasonic vocalization: short-range communication
in Handbook of Mammalian Vocalization: an integrative neuroscience approach, Academic Press, Oxford (2010) 69-76
Campbell K, Barwick R, Senden T
Perforations and tubules in the snout region of Devonian dipnoans
in Morphology, Phylogeny and Paleobiogeography of Fossil Fishes, Verlag Dr Friedrich Pfeil, Germany (2010) 325-361
Craig V, Henry C
Specific Ion Effects at the Air-Water Interface: Experimental Studies
in Specific Ion Effects, World Scientific Publishing Company, New York (2010) 191-214
Dewar R
The Screened Field of a Test Particle
in In Celebration of K C Hines, World Scientific Publishing Company, Unknown (2010) 47-73
Fletcher N
A frequency scaling rule in mammalian vocalization
in Handbook of Mammalian Vocalization: an integrative neuroscience approach, Academic Press, Oxford (2010) 51-56
Lamont M, Luther-Davies B, Yeom D, Eggleton B
Supercontinuum generation in chalcogenide glass waveguides
in Supercontinuum Generation in Optical Fibers, Cambridge University Press, United Kingdom (2010) 306 - 333
Parsons D, Ninham B, Lo Nostro P
Specific ion Effects
in Molecular Forces and Self Assembly: In Colloid, Nano Sciences and Biology, Cambridge University Press, UK (2010) 146-231
Shalav A, Savenije T, Schropp R
Organic-Silicon Hybrid Photovoltaic Devices
in Physics of Nanostructured Solar Cells, Nova Science Publishers Inc., New York (2010) 69-91
Williams J, Wong-Leung Y
Voids and Nanocavities in Silicon
in Topics in Applied Physics 116: Materials Science with Ion Beams, Springer, Berlin (2010) 113-146
Williams J, De Medeiros Azevedo G, Bernas H, Fortuna F
Ion-Beam-Induced Amorphization and Epitaxial Crystallization of Silicon
in Topics in Applied Physics 116: Materials Science with Ion Beams, Springer, Berlin (2010) 73-107

Journal Articles (413 publications)

Abdullaev J, Poletti D, Ostrovskaya E, Kivshar Y
Controlled transport of matter waves in two-dimensional optical lattices
Physical Review Letters 105, 9 (2010) 4
Afanas'ev V, Afanas'ev M, Lubechenko A, Batrakov A, Efremenko D, Vos M
Influence of multiple elastic scattering on the shape of the elastically scattered electron peak
Journal of Electron Spectroscopy and Related Phenomena 177 (2010) 35-41
Ahlefeldt R, Hutchison W, Sellars M
Eu^{3+} superhyperfine structure due to magnetic dipole-dipole interactions with Nd^{3+} in $Nd^{3+} : EuCl_3 \cdot 6H_2O$
Journal of Luminescence 130, 9 (2010) 1594 - 1597
Akhmediev N, Ankiewicz A, Soto-Crespo J, Dudley J
Universal triangular spectra in parametrically-driven systems
Physics Letters A Article in Press, Corrected Proof (2010) 5
Akhmediev N, Soto-Crespo J, Ankiewicz A
Could rogue waves be used as efficient weapons against enemy ships?
European Physical Journal - Special Topics , 185 (2010) 259-266
Altin P, Robins N, Doering D, Debs J, Poldy R, Figl C, Close J
^{85}Rb tunable-interaction Bose-Einstein condensate machine
Review of Scientific Instruments 81 (2010) 063103-1-8
Altin P, Robins N, Poldy R, Debs J, Doering D, Figl C, Close J
Measurement of inelastic losses in a sample of ultracold ^{85}Rb
Physical Review A: Atomic, Molecular and Optical Physics 81, 012713 (2010) 012713,1-4
Amaratunga V, Premaratne M, Tan H, Hattori H, Jagadish C
Performance assessment of hybrid surface emitting lasers with lateral one-dimensional photonic-crystal mirrors
Journal of the Optical Society of America B 27, 4 (2010) 806-817
Andersson L, Jones A, Knackstedt M, Bergstrom L
Three-dimensional structure analysis by X-ray micro-computed tomography of macroporous alumina templated with expandable microspheres
Journal of the European Ceramic Society 30, xxx (2010) 2547-2554
Andrews M
Quantum mechanics with uniform forces
American Journal of Physics 78, 12 (2010) 1361-1364
Ankiewicz A, Akhmediev N, Soto-Crespo J
Discrete rogue waves of the Ablowitz-Ladik and Hirota equations
Physical Review E (Statistical, Nonlinear and Soft Matter Physics) 82, 026602 (2010) 7
Ankiewicz A, Clarkson P, Akhmediev N
Rogue waves, rational solutions, the patterns of their zeros and integral relations
Journal of Physics A: Mathematical and Theoretical 43, 122002 (2010) 9
Ankiewicz A, Soto-Crespo J, Akhmediev N
Rogue waves and rational solutions of the Hirota equation
Physical Review E (Statistical, Nonlinear and Soft Matter Physics) 81, 046602 (2010) 8
Argento D, Stone J, Fifield K, Tims S
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Grants

Listed on the next few pages are research grants by funding provider, then by scheme name and investigators. The amount is the total amount awarded to ANU over the life of the fund and is current as of 2010. External collaboration is highlighted in blue, i.e. 45% (81 of 179) of the grants listed have involved collaboration with external institutions. RSPE is also a partner in externally led funding totallying approximately $773,000, a significant amount of which flows through to the research school. Figures were sourced from ARIES on 18 July 2011.

PRIMARY FUNDS PROVIDER	SCHEME	INVESTIGATORS	GRANT TITLE	START	END	LIFE AMOUNT
Australian Academy of Science	Travel Grant	Neshev, Dragomir*; Pertsch, Thomas#; Schiek, Roland#; Sukhorukov, Andrey*	Signal Processing in Quadratic Nonlinear Waveguides	01-Jul-10	30-Jun-11	$15,675
Australian Institute of Nuclear Science and Engineering (AINSE)	Postgraduate Research Award	Blackwell, Boyd*; Haskey, Shaun*; Hole, Matthew*	From Stellarator to tokamaks: The effects of 3D structure on Alfven eigenmodes	01-Jul-10	24-Nov-12	$39,000
	Postgraduate Research Award	Corr, Cormac*; Charles, Christine*; Hudspeth, Jessica*; Nelson, Andrew#	Plasma Deposition Techniques for Proton Exchange Membrane Fuel Cells	01-Jul-09	03-Feb-12	$51,402
Australian Mathematical Sciences Institute	Internship	Batchelor, Murray*	Command and Control Science Mentoring	17-Aug-09	18-Jun-10	$10,000
Australian National Fabrication Facility Ltd	Grant	Jagadish, Chennupati*; Faraone, Lorenzo#; Williams, James S*	Australian National Nanofabrication Facility	31-Aug-07	30-Jun-11	$11,000,000
Australian Nuclear Science & Technology Organisation (ANSTO)	Access to Major Research Facilities Program	Chow, Jong *	Searching for gravitational waves with the Laser Interferometer Gravitational Wave Observatory (LIGO)	26-Feb-10	31-Mar-10	$9,838
	Access to Major Research Facilities Program	Inta, Ra*	Searching for gravitational waves with the Laser Interferometer Gravitational Wave Observatory (LIGO)	19-Mar-10	15-Apr-10	$5,704
	Access to Major Research Facilities Program	Miller, John*	Searching for Gravitational Waves with the Laser Interferometer Gravitational Wave Observatory (LIGO)	19-Aug-10	31-Oct-10	$5,475

	Access to Major Research Facilities Program	Shaddock, Daniel*	Searching for Graviatational Waves with the Laser Interferometer Gravitational Wave Observatory	17-Aug-10	31-Oct-10	$4,600
Australian Photonics Pty Ltd	Consultancy	Luther-Davies, Barry*	Polymer Waveguides and Integrated Optics (Redfern Polymer Optics) Project	01-May-01	31-May-10	$566,100
	Consultancy	Luther-Davies, Barry*	Polymer Waveguides and Integrated Optics (Redfern Polymer Optics) Project	01-May-01	31-May-10	$160,296
	Consultancy	Luther-Davies, Barry*; Ankiewicz, Adrian*; Krolikowski, Wieslaw*	Polymer Waveguides and Integrated Optics (Redfern Polymer Optics) Project	01-May-01	31-May-10	$108,000
Australian Research Council (ARC)	2005 Discovery: Project Grant	Lam, Ping Koy*; Lam, Ping Koy*	Continuous Variable Quantum Information Experiments	22-Sep-05	21-Sep-10	$776,630
	2005 Linkage: Infrastructure Equipment and Facilities	Fifield, L Keith*; Bowman, David D#; Bush, Richard Thomas#; Cartwright, Ian#; Chappell, John*; De Deckker, Patrick*; Field, Judith#; Gore, Damian#; Herczeg, Andrew#; Hesse, Paul#; Kershaw, Arnold Peter#; Turney, Christian#; Weaver, Tamie Renee#	A new-generation gas-source radiocarbon system for integrated environment and archaeological research - Led by ANU	01-Jan-05	31-Dec-10	$854,354
	2006 Discovery: Project Grant	Fu, Lan*; Johnston, Michael B#	Development of High Performance III-V Semiconductor Photoconductive Antennas for Terahertz Applications	01-Mar-06	19-Jul-11	$480,629

	2006 Discovery: Project Grant	Krolikowski, Wieslaw*; Gamaly, Eugene G*; Rode, Andrei V*	Ultra-High Density Permanent and/or Erasable Optical Memory in Photorefractive Media Formed by Ultrafast Laser Pulses	01-Jan-06	31-Dec-11	$695,000
	2006 Linkage: Projects	McClelland, David*; Chow, Jong *; Littler, Ian C M#; Williamson, Peter#	Technologies for advanced optical fibre sensors	01-Sep-06	30-Aug-10	$2,301,835
	2007 Discovery: Project Grant	Ashrafi, Abm (Almamun)*	Pulsed Laser Deposition of ZnO-based Materials for Optoelectronic Device Applications	23-Mar-07	22-Mar-10	$446,981
	2007 Discovery: Project Grant	Bouwknegt, Pier (Peter)*	Generalized Geometries and their Applications	01-Jan-07	31-Dec-10	$377,066
	2007 Discovery: Project Grant	Desyatnikov, Anton S*; Kivshar, Yuri*; Krolikowski, Wieslaw*	Singular photonics: twisted light and optical vortices	01-Jan-07	31-Dec-10	$878,492
	2007 Discovery: Project Grant	Elliman, Robert*; Choi, Suk Ho#; Valenta, Jan#	Self-assembled semiconductor nanocrystals as functional materials for microelectronics, optoelectronics and photonics	01-Jan-07	31-Dec-10	$1,076,752
	2007 Discovery: Project Grant	Jagadish, Chennupati*	Epitaxial Nanowires for Optoelectronic Device Applications	01-Jan-07	31-Dec-11	$2,000,000
	2007 Discovery: Project Grant	Jagadish, Chennupati*; De La Rue, Richard M#	Photonic Crystal Quantum Dot Lasers	01-Jan-07	31-Dec-10	$2,267,339
	2007 Discovery: Project Grant	Lei, Wen*	InAsSb Quantum Dots for Mid-Infrared Lasers	04-Jun-07	03-Jun-10	$533,981

	2007 Discovery: Project Grant	Luther-Davies, Barry*; Haglund, Richard #	A Novel Optical Source for the Vaporization and Deposition of Polymers	01-Jan-07	31-Dec-10	$758,074
	2007 Discovery: Project Grant	Madden, Steve*	Next Generation Planar Tellurite Waveguides	01-Jan-07	31-Dec-10	$1,082,154
	2007 Discovery: Project Grant	Manson, Neil*	Optical-spin coupling in the nitrogen-vacancy centre in diamond	01-Jan-07	31-Dec-10	$519,949
	2007 Discovery: Project Grant	McClelland, David*; Owen, Benjamin #; Scott, Susan M*; Slagmolen, Bram*; Slagmolen, Bram*; Whitcomb, Stanley Ernest#	Pushing the frontiers of gravitational wave science: from technology to astrophysics	01-Jan-07	31-Dec-10	$810,090
	2007 Discovery: Project Grant	Mills, Franklin (Frank)*; Gladstone, George R#; Lewis, Brenton*; Yung, Yuk L#	Isotopic fractionation in planetary atmospheres	01-Jan-07	31-Dec-10	$1,331,606
	2007 Discovery: Project Grant	Miroshnichenko, Andrey*	Tunable nonlinear photonic devices with liquid crystals	08-Feb-07	07-Feb-10	$234,218
	2007 Discovery: Project Grant	Mitchell, Arnan#; Neshev, Dragomir*	Active control of light for nonlinear photonic devices (externally led by RMIT University)	20-Jul-07	31-Dec-10	$127,400
	2007 Discovery: Project Grant	Ostrovskaya, Elena*	Controlled manipulation of matter-waves in atomic waveguiding structures	08-Feb-07	07-Feb-12	$489,863
	2007 Discovery: Project Grant	Shadrivov, Ilya*	Engineering and control of metamaterials with negative refraction	08-Feb-07	31-Dec-10	$254,554

	2007 Discovery: Project Grant	Stuchbery, Andrew *; Koller, Noemie#; Mantica, Paul F#	Magnetic moments of radioactive beams - an incisive probe of novel structures in neutron-rich nuclei	01-Jan-07	31-Dec-10	$3,426,349
	2007 Discovery: Project Grant	Sukhorukov, Andrey*	Slow light in nanostructured materials	01-Jan-07	31-Dec-11	$574,465
	2007 Linkage: Projects	Senden, Timothy *; Jones, Stephen#; Stephens, Ross*	New methods to improve regional isotope therapy of liver tumours in cancer patients	30-Dec-08	29-Dec-11	$405,124
	2007 Linkage: Projects	Williams, James S*; Bradby, Jodie*	An entirely new approach to low temperature fabrication of silicon-based thin film transistors (TFTs) for flat panel displays	23-Sep-08	31-Dec-11	$318,641
	2008 Discovery Project Grant	Batchelor, Murray*	The mathematics of cold quantum matter	01-Jan-08	31-Oct-10	$265,000
	2008 Discovery Project Grant	Bouwknegt, Pier (Peter)*; Varghese, Mathai #; Wu, Siye #	Dualities in String Theory and Conformal Field Theory in the context of the Geometric Langlands Program	01-Jan-08	31-Dec-10	$390,981
	2008 Discovery Project Grant	Desyatnikov, Anton S*	Engineering phase and the flow of light in nanophotonics	01-Jan-08	31-Dec-12	$558,000

	2008 Discovery Project Grant	Elliman, Robert*; Choi, Suk Ho#; Fletcher, Neville H*	Charge transport and trapping in high-k dielectric films containing self-assembled nanocrystals	01-Jan-08	31-Dec-10	$398,000
	2008 Discovery Project Grant	Gibson, Stephen*; Lewis, Brenton*	Sulfuric acid formation from atmospheric sulfur trioxide and disulfur oxide: is one water molecule enough?	01-Jan-08	31-Dec-10	$390,000
	2008 Discovery Project Grant	Hinde, David*; Dasgupta, Mahananda*; Freer, Martin #; Hagino, Kouichi #; Tostevin, Jeffrey Allan#	Developing and exploiting a beam of exotic neutron halo nuclei: probing quantum coherence and decoherence at the femtoscale	01-Jan-08	31-Dec-12	$1,063,000
	2008 Discovery Project Grant	Knackstedt, Mark*; Arns, Christoph#; Arns, Christoph*; Garboczi, Edward J#; Saadatfar, Mohammad*	Rock Physics: A study of micromechanics of rocks and granulated materials	01-Jan-08	31-Dec-10	$265,000
	2008 Discovery Project Grant	Knackstedt, Mark*; Fogden, Andrew*; Morrow, Norman Robert#	Pore scale characterisation of the wettability of petroleum reservoir core material: Towards optimised recovery of hydrocarbon reserves	01-Jan-08	31-Dec-10	$264,000
	2008 Discovery Project Grant	Makochekanwa, Casten*	Positronic Atoms - A Search for Positron Bound States	01-Jan-08	31-Dec-10	$235,944
	2008 Discovery Project Grant	Ninham, Barry*	Molecular forces: in colloid science, complex fluids and living matter	01-Jan-08	31-Dec-10	$338,000

	2008 Discovery Project Grant	Ridgway, Mark C*; Kluth, Patrick*; Nordlund, Kai #	Tailoring the Shape, Size and Orientation of Metal Nanocrystals via Swift Heavy Ion Irradiation	01-Jun-08	31-May-13	$980,000
	2008 Discovery Project Grant	Ruffell, Simon*	A novel maskless process for patterning and doping of silicon	01-Jan-08	31-Dec-10	$308,000
	2008 Discovery Project Grant	Shats, Michael*; Falkovich, Gregory #; Punzmann, Horst*	Structural transitions in turbulent fluids and plasma through self-organization	01-Jan-08	31-Dec-11	$360,000
	2008 Discovery Project Grant	Shats, Michael*; Nazarenko, Sergey #; Punzmann, Horst*	New method of remote characterization of hydrocarbon films on the ocean surface through studies of wave turbulence	01-Jan-08	31-Dec-11	$246,000
	2008 Discovery Project Grant	Symul, Thomas*; Ralph, T C*; Ralph, Timothy Cameron#; Sanders, Barry Cyril#; Schnabel, Roman #	Quantum repeater technologies for continuous variable	01-Jan-08	17-Feb-13	$766,643
	2008 Discovery Project Grant	Williams, James S*; Bradby, Jodie*	Engineering nanoscale material properties by controlled-temperature indentation	01-Jan-08	31-Dec-10	$445,000
	2008 Discovery Project Grant	Wong-Leung, Yin-Yin*; Cockayne, David John Hugh#; Svensson, Bengt Gunnar#	Dopants, defects and related issues in Zinc Oxide	06-Feb-08	05-Feb-12	$308,000
	2008 Linkage: International Awards	Krolikowski, Wieslaw*; Bang, Ole#	Nonlocal nonlinear waves	01-Jan-08	31-Dec-11	$29,600

	2008 Linkage: International Awards	Lewis, Brenton*; Mills, Franklin (Frank)*; Shemansky, Donald E#; Ubachs, Wim#; Young, Edward D#; Yung, Yuk L#	Understanding the chemistry and evolution of planets and their atmospheres: Integrating experiments, observations, and quantum mechanical models	01-Jan-08	31-Dec-11	$49,799
	2008 Linkage: Projects	Boswell, Rod*; Carman, Robert John#	Aperture and power scaling of Remote Plasma Sources for GaN film growth and development of a real-time diagnostic tool for activated Nitrogen species (externally led by Macquarie University)	01-Jan-09	31-Dec-11	$303,553
	2008 Linkage: Projects	Boswell, Rod*; Charles, Christine*; Laine, Robert#	Space development of the HDLT Australian Plasma Thruster	01-Jan-09	31-Dec-11	$332,000
	2008 Linkage: Projects	Craig, Vincent*; Fogden, Andrew*; Senden, Timothy *; Thomson, Stuart#	Innovative platforms for futher enhancing security and durability of the Australian Polymer Banknote and other security documents	30-Sep-09	29-Sep-12	$504,948

	2008 Linkage: Projects	Fredericks, Peter#; Rode, Andrei V*; Gramotnev, Dmitri#; Kirkbride, Kenneth#; Otieno-alego, Vincent#	A new nano-sensor technology for the detection and identification of residual vapours of explosives, drugs and chemicals in the air (externally led by Queensland University of Technology)	12-Aug-08	31-Dec-11	$20,000
	2009 Australian Laureate Fellowship	Jagadish, Chennupati*	Nanowire Quantum Structures for Next Generation Optoelectronic	25-Nov-09	24-Nov-14	$2,753,840
	2009 Discovery Project Grant	Akhmediev, Nail*	Dissipative soliton resonances and their applications	01-Jan-09	31-Dec-11	$360,000
	2009 Discovery Project Grant	Bradby, Jodie*; Gibson, John Murray#	Understanding structure-property relations in amorphous silicon	01-Jan-09	31-Dec-13	$735,000
	2009 Discovery Project Grant	Choi, Duk-Yong*; Kim, Yong#; Yoon, Euijoon#	Monolithic Integration of Silicon Waveguide and Ge1-xSix Photodetector on Silicon-on Insulator Platform for Intra-chip Optical Interconnect	01-Jun-09	31-May-12	$360,000
	2009 Discovery Project Grant	Dracoulis, George*; Byrne, Aidan*; Kondev, Filip G#; Lane, Gregory*; Xu, Furong #	Quantum-number purity and limits to the formation of nuclear K-isomers	01-Jan-09	31-Dec-11	$530,000

	2009 Discovery Project Grant	Fifield, L Keith*; Parry, David#; Tims, Stephen*; Wasson, Robert J*; Wasson, Robert#	Assessing soil formation and erosion balances in the Top End with an expanded toolkit	01-Jan-09	31-Dec-11	$290,000
	2009 Discovery Project Grant	Garanovich, Ivan*; Pertsch, Thomas#; Sukhorukov, Andrey*	Tunable shaping and switching of polychromatic light for integrated photonics	14-May-09	13-May-12	$285,000
	2009 Discovery Project Grant	Kheifets, Anatoli*; Bray, Igor#; Ullrich, Joachim#	Atomic Ionization on the Attosecond Time Scale	01-Jan-09	31-Dec-11	$485,000
	2009 Discovery Project Grant	Kluth, Patrick*; Toulemonde, Marcel#; Trautmann, Christina#	Swift Heavy Ion Tracks in Semiconductors and Insulators: New Insights using Synchrotron Scattering Experiments	01-Jan-09	31-Dec-11	$275,000
	2009 Discovery Project Grant	Matuszewski, Michal*	Nonlinear optics of soft matter	01-Jan-09	31-Dec-12	$255,000
	2009 Discovery Project Grant	Ridgway, Mark C*; Byrne, Aidan*; Wesch, Werner#	Probing the properties of amorphous semiconductors with swift heavy ion irradiation and synchrotron radiation	01-Jan-09	31-Dec-11	$435,000
	2009 Discovery Project Grant	Rode, Andrei V*; Juodkazis, Saulius#; Misawa, Hiroaki#	Ultrafast photonic hammer: A new strategy to synthesise super-dense super-hard nanomaterials	01-Jan-09	31-Dec-11	$320,000
	2009 Discovery Project Grant	Sellars, Matthew*	Development of a quantum repeater	01-Jan-09	31-Dec-11	$310,000

	2009 Discovery Project Grant	Shaddock, Daniel*; Chow, Jong *; Danzmann, Karsten#; Jenkins, Charles*; Lay, Oliver#; McClelland, David*; Mueller, Guido#; Shaddock, Daniel#; Whitcomb, Stanley Ernest#	Digital Interferometry: A platform technology for robust optical measurements	01-Jan-09	31-Dec-11	$550,000
	2009 Discovery Project Grant	Williams, David*; Ninham, Barry*	Polymer Globules: Beyond the Homopolymer Model	01-Jan-09	31-Dec-11	$385,000
	2009 Discovery Project Grant	Williams, James S*; Aziz, Michael#; Capasso, Federico#; McCallum, Jeffrey C#; Wong-Leung, Yin-Yin*	Defect-induced luminescence from ion-implanted silicon: Towards silicon photonics applications	01-Jan-09	31-Dec-11	$570,000
	2009 Discovery Project Grant	Xu, Zhiyong*	Nonlinear Surface Modes in Photonic and Plasmonic Metamaterials	01-Jan-09	31-Dec-11	$255,000
	2009 Future Fellowships	Craig, Vincent*	Specific Ion effects in non-aqueous solvents. A test for Hofmeister	26-Nov-09	25-Nov-13	$788,800
	2009 Future Fellowships	Hole, Matthew*	Fusion Energy and the Physics of Burning Plasmas	15-Feb-10	31-Dec-13	$686,400
	2009 Future Fellowships	Lam, Ping Koy*	Quantum Opto-Mechatronics	01-Jan-10	31-Dec-13	$891,200
	2009 Linkage International Fellowships: Australian Fellows to Collaborate Overseas	Bazhanov, Vladimir*; Au-Yang, Helen#; Baxter, Rodney*; Perk, Jacques#	New frontiers in statistical mechanics	01-Jan-09	31-Dec-10	$82,090
	2009 Linkage International Fellowships: Australian Fellows to Collaborate Overseas	Sukhorukov, Andrey*; Lavrinenko, Andrei#	Slow-light photonics	01-Mar-09	31-Dec-10	$49,000

	2009 Linkage: Infrastructure Equipment Facilities	Eggleton, Benjamin J#; Luther-Davies, Barry*	Optical Test Bed Facility for Testing Midir Components for Sensing Imaging & Astrophotonics (externally led by the University of Sydney)	14-Aug-09	14-Aug-10	$20,000
	2009 Linkage: Infrastructure Equipment Facilities	McClelland, David*; Lazzarini, A#; Marx, Jay#; Munch, Jesper#; Shaddock, Daniel*; Shoemaker, D#; Slagmolen, Bram*; Veitch, Peter John#; Whitcomb, Stanley Ernest#	Australian Partnership in Advanced LIGO	01-Jan-09	31-Dec-12	$1,800,000
	2009 Linkage: Infrastructure Equipment Facilities	Ridgway, Mark C*; Bhargava, Suresh Kumar#; Collins, Richard#; Creagh, Dudley C#; De Marco, Roland#; Dillon, Carolyn#; Gentle, Ian Ross#; Gerson, Andrea Ruth#; Harris, Hugh#; Lay, Peter#; Low, It-Meng (Jim)#; Waite, David#	Australian Access to and Operation of Advanced Synchrotron Radiation Facilities at the Photon Factory	01-Jan-09	31-Dec-11	$360,000
	2009 Linkage: Projects (Round 1)	Elliman, Robert*; Krause, Norbert#; Wang, Hai Ping#	Switching mechanisms in nonvolatile resistive memory using high-k dielectrics	01-Jan-09	31-Dec-11	$608,708
	2009 Linkage: Projects (Round 1)	Williams, James S*; Bradby, Jodie*; Ruffell, Simon*	A novel approach to direct nanopatterning of silicon for advanced phase-changed devices	31-Dec-09	30-Dec-12	$761,300
	2010 Discovery Project Grant	Batchelor, Murray*; Guan, Xi-Wen*; Liu, Wensheng Vincent#	Quantum many-body systems with higher mathematical symmetries	01-Jan-10	31-Dec-12	$240,000
	2010 Discovery Project Grant	Bazhanov, Vladimir*; Baxter, Rodney*; Perk, Jacques#	Fundamental mathematical structures in statistical and quantum systems	01-Jan-10	31-Dec-12	$305,000

	2010 Discovery Project Grant	Bazhanov, Vladimir*; Bobenko, Alexander#	Quantization of polyhedral surfaces	01-Jan-10	31-Dec-12	$320,000
	2010 Discovery Project Grant	Bernu, Julien*; Grangier, Philippe#; Treps, Nicolas#	Non-Gaussian states and entanglement distillation for Continuous Variable quantum information protocols	01-Jan-10	31-Dec-12	$340,000
	2010 Discovery Project Grant	Charles, Christine*	Current-free double layers applied to astrophysical objects and space propulsion	01-Jan-10	31-Dec-12	$185,000
	2010 Discovery Project Grant	Close, John*; Aspect, Alain#; Kasevich, Mark A#; Oberthaler, Markus K#; Robins, Nicholas*	Advanced Atomic Sources for Precision Measurement	01-Jan-10	31-Dec-14	$529,797
	2010 Discovery Project Grant	Desyatnikov, Anton S*; Assanto, Gaetano#; Kivshar, Yuri*	Photonic routing with liquid crystals	01-Jan-10	31-Dec-12	$345,000
	2010 Discovery Project Grant	Hole, Matthew*; Dewar, Robert*; McClements, Ken #; Pinches, Simon D#; Sharapov, Sergei #	Burning Plasmas: resolving energetic particle physics for ITER	01-Jan-10	31-Dec-12	$285,000
	2010 Discovery Project Grant	Kivshar, Yuri*	Nonlinear nanophotonics	01-Jan-10	31-Dec-12	$405,000
	2010 Discovery Project Grant	Lam, Ping Koy*; Aspelmeyer, Markus#; Buchler, Benjamin*; Furusawa, Akira#; Sandoghdar, Vahid#	Quantum Opto-Mechanics with Whispering Gallery Modes in Crystalline Materials	01-Jan-10	31-Dec-12	$300,000
	2010 Discovery Project Grant	Luther-Davies, Barry*	Rare Earth doped chalcogenide glass films for on-chip optical amplifiers	01-Jan-10	01-Jan-11	$365,000

	2010 Discovery Project Grant	McClelland, David*; Mavalvala, Nergis #; Owen, Benjamin #; Schnabel, Roman #; Scott, Susan M*; Whitcomb, Stanley Ernest#	Probing the Universe with gravitational waves: from cutting-edge technology to astronomy	01-Jan-10	31-Dec-12	$410,000
	2010 Discovery Project Grant	Mokkapati, Sudha*; Fu, Lan*	High efficiency III-V solar cells based on low-dimensional quantum confined heterostructures	01-Aug-10	31-Jul-13	$90,000
	2010 Discovery Project Grant	Neshev, Dragomir*	Nanoscale nonlinear optics	01-Jan-10	31-Dec-14	$555,000
	2010 Discovery Project Grant	Ridout, David*	Indecomposable Structure in Representation Theory and Logarithmic Conformal Field Theory	20-Sep-10	19-Sep-15	$570,000
	2010 Discovery Project Grant	Shadrivov, Ilya*	Nonlinear metamaterials and transformation optics	09-Feb-10	08-Feb-15	$700,000
	2010 Discovery Project Grant	Sheng, Yan*	Optical parametric processes in randomized nonlinear photonic structures	01-Jan-10	31-Dec-12	$340,000
	2010 Discovery Project Grant	Tan, Hoe Hark*; Gao, Qiang*; Johnston, Michael B#	Integration of III-V semiconductor nanowires on silicon platform	01-Mar-10	28-Feb-15	$740,000
	2010 Discovery Project Grant	Vos, Maarten*; Weigold, Erich*; Werner, Wolfgang#; Winkelmann, Aimo#	High-energy electron scattering of surfaces: new spectroscopies and new physics	01-May-10	31-Dec-12	$116,288

	2010 Discovery Project Grant	Ye, Jiandong*	Development of high performance wide-bandgap polar oxide electronic and optoelectronic devices	15-Jun-10	30-Jun-15	$780,000
	2010 Linkage: Infrastructure Equipment Facilities	Kivshar, Yuri*; Bradby, Jodie*; Catchpole, Kylie*; Elliman, Robert*; Fu, Lan*; Hattori, Haroldo#; Luther-Davies, Barry*; Mitchell, Arnan#; Moran, Grainne Mary#; Neshev, Dragomir*; Sellars, Matthew*; Tan, Hoe Hark*; Williams, James S*	Nanoscale optical microscopy facility	28-Apr-10	27-Apr-11	$492,058
	2010 Linkage: Infrastructure Equipment Facilities	Lam, Ping Koy*; Bachor, Hans*; Bowen, Warwick#; Buchler, Benjamin*; Gray, Malcolm B#; Lee, Kwan#; Leuchs, G#; Longdell, Jevon Joseph#; Luiten, Andre Nicholas#; McClelland, David*; Rubinsztein-Dunlop, Halina#; Sellars, Matthew*; Shaddock, Daniel*; Symul, Thomas*; Tobar, Michael#; Warrington, Richard B#; White, Andrew G#	Ultra-Precision Cutting and Polishing Machines for Fabricating High-Q Crystalline Resonators	01-Jan-10	31-Dec-11	$849,845
	2010 Linkage: Infrastructure Equipment Facilities	Luther-Davies, Barry*; Bulla, Douglas*; Choi, Duk-Yong*; Eggleton, Benjamin J#; Grillet, Christian#; Jackson, Stuart D#; Madden, Steve*; Monat, Christelle#; Moss, David J#; Pelusi, Mark#; Rode, Andrei V*; Wang, Rongping*	A Co-thermal Evaporator for the Production of Chalcogenide Thin Films for Photonics	01-Jan-10	31-Dec-11	$569,296
	2010 Linkage: Infrastructure Equipment Facilities	White, Timothy*; Bradby, Jodie*; Cuevas, Andres*; Elliman, Robert*; Fitz Gerald, John*; Jackson, Ian*; Jagadish, Chennupati*; Liu, Yun*; MacDonald, Daniel*; Ridgway, Mark C*; Rode, Andrei V*; Stachurski, Zbigniew*; Williams, James S*; Withers, Ray L*; Wong-Leung, Yin-Yin*	An Analytical Transmission Electron Microscope for the Investigation of Functional Materials, Earth Processes and Novel Condensed Matter	30-Apr-10	31-Dec-11	$1,000,000

	2010 Linkage: Projects (Round 2)	Chow, Jong *; Collins, Michael#; Gray, Malcolm B#; McClelland, David*; Roberts, Edward#; Shaddock, Daniel*; Warrington, Richard B#	Quantum noise limited molecular spectrometry	14-Dec-10	13-Dec-13	$955,500
	Centre of Excellence	Bachor, Hans*; Baldwin, Kenneth*; Ballagh, Robert#; Carmichael, Howard#; Close, John*; Corney, Joel Frederick#; Dalton, Bryan John#; Davis, Matthew John#; Drummond, Peter David#; Ertmer, Wolfgang#; Fabre, Claude#; Giacobino, Elisabeth#; Hannaford, Peter#; Hinds, Edward#; Hope, Joseph*; Kheruntsyan, Karen V#; Kieu, Tien D#; Kivshar, Yuri*; Lam, Ping Koy*; Leuchs, G#; McLean, R#; Ostrovskaya, Elena*; Reid, MD#; Rowlands, WJ#; Savage, Craig*; Sidorov, A#; Truscott, Andrew*; Vassen, Wim#; Wilson, Andrew#	ARC Centre of Excellence - Australian Centre for Quantum-Atom Optics	01-Jan-03	31-Dec-11	$18,071,655
	Centre of Excellence	Buckman, Stephen*; Bartschat, Klaus R#; Bastow, Timothy#; Bray, Igor#; Brunger, Michael J#; Burrow, Paul#; Fursa, Dmitry#; Hill, Anita#; Koller, Hubert#; Lohmann, Birgit#; Lower, Julian*; Marler, Joan P#; Mason, Nigel John#; McCurdy, Clyde#; McEachran, Robert*; Nagai, Yasuyoshi#; Orel, Ann#; Pas, Steven#; Rescigno, Thomas Nicola#; Samarin, Sergey#; Smith, Suzanne#; Stelbovics, Andris#; Sullivan, James*; Surko, Clifford M#; Teubner, Peter J#; Vance, Lou#; Williams, J.F#	ARC Centre of Excellence - Centre for Antimatter-Matter Studies	01-Jul-05	31-Dec-13	$12,000,000
	Centre of Excellence	Luther-Davies, Barry*; Kivshar, Yuri*; Krolikowski, Wieslaw*	ARC Centre of Excellence - Centre for Ultrahigh-Bandwidth Devices for Optical Systems	01-Jan-03	31-Dec-10	$2,967,000

	Federation Fellowships	Kivshar, Yuri*	All-optical Technologies, Nanophotonics, and Metamaterials	01-Nov-07	31-Oct-12	$1,606,210
	Research Networks	Dewar, Robert*; Abbass, Hussein#; Batten, David Francis#; Bernhardt, Debra#; Bossomaier, Terry#; Cairns, Iver Hugh#; Chong, Min Seong#; Denier, Jim#; Finnigan, John#; Frederiksen, Jorgen Segerlund#; Gottwald, Georg#; Grebogi, Celso#; Green, David Geoffrey#; Guttman, A J#; Hamer, Christopher John#; Henry, B I#; Liley, David Tibor#; Lindsay, Peter Alexander#; Little, Richard#; Mackay, Robert Sinclair#; Metcalfe, Guy Parker#; Milne, George Johnstone#; Morriss, Gary Phillip#; Owczarek, AL#; Pattison, PhilippaEleanor#; Prokopenko, Mikhail#; Quispel, GR#; Raupach, Michael R#; Roberts, Anthony J#; Robinson, Peter A#; Sloan, IH#; Soria, Julio#; Standish, Russell K#; Vincent, Robert A#; Vladimirov, Serguei#; Walker, Paul A#; Wiles, Janet#; Williams, Anthony G#	Complex Open Systems Network	01-Jul-04	31-Dec-11	$1,500,000

	Research Networks	Jagadish, Chennupati*; Cameron, Fiona Helen#; Clark, Robert Graham#; Cortie, Michael#; Dastoor, Paul Christopher#; Dell, John Marcel#; Dimitrijev, Sima#; Dzurak, Andrew Steven#; Eggleton, Benjamin J#; Faraone, Lorenzo#; Gal, Michael#; Grant, Kenneth John#; Gu, Min#; Hamilton, Alexander Rudolf#; Hariz, Ahsan M#; Horn, Roger Graham#; Jamieson, David Norman#; Jesson, David Edward#; Kane, Deborah#; Lewis, Roger#; Lu, Gaoqing Max#; Majewski, Peter J#; McCallum, Jeffrey C#; Meredith, Paul#; Micolich, Adam Paul# Mulvaney, Paul C#; Nicolau, Dan V#; Parish, Giacinta#; Parkinson, Gordon Michael#; Phillips, Matthew R#; Raston, Colin Llewellyn#; Riley, John D#; Ringer, Simon Peter#; Rubinsztein-Dunlop, Halina#; Saunders, Martin#; Savvides, Nick#; Shapter, Joseph G#; Simmons, Michelle Yvonne#; Singh, Jugdutt#; Sood, Dinesh Kumar#; Stampfl, Catherine M#; Turney, Terence William#; Usher, Brian F#; Voelcker, Nicolas H#; Withford, Michael#; Zou, Jin#	Australian Nanotechnology Network	01-Jul-04	31-Dec-10	$1,900,000

	Research Networks	Williams, James S*; Bilek, Marcela#; Brown, Hugh#; Cheng, Yi-Bing#; Collins, George Andrew#; Faraone, Lorenzo#; Ferry, Michael#; Gal, Michael#; Halley, Peter John#; Hodgson, Peter Damian#; Horn, Roger Graham#; Jamieson, David Norman#; Jiang, Zheng Yi#; Lamb, Robert Norman#; Lu, Gaoqing Max#; McKenzie, David R.#; Munroe, Paul#; Murch, Graeme Elliot#; Nie, Jian-Feng#; Nowotny, Janusz#; Raston, Colin Llewellyn#; Ringer, Simon Peter#; Scala , Christine Mary#; Simmons, Michelle Yvonne#; Sood, Dinesh Kumar#; Spnks, G M#; Swain, Michael Vincent#; Turney, Terence William#; Wang, Jun#; Wang, Xungai#; Ye, Lin#; Zou, Jin#	Australian Research Network for Advanced Materials	01-Jul-04	31-Dec-11	$1,500,000
	Super Science Fellowship	Fifield, L Keith*; De Deckker, Patrick*; Ellwood, Michael*; Fallon, Stewart*	Novel Dating Methods for Marine Sediments of Relevance to Determining Past Climate Changes	01-Jul-10	31-Dec-13	$556,800
Australian Synchrotron Company Ltd	Grants Program	Araujo, Leandro*; Giulian, Raquel*; Ridgway, Mark C*	Anisotropic vibrational properties in semiconductors- Part III	10-Mar-10	14-Mar-10	$1,415
	Grants Program	Araujo, Leandro*; Giulian, Raquel*; Ridgway, Mark C*	Structural characterization of ion beam modified GeSbTe	04-Sep-10	06-Sep-10	$1,415
	Grants Program	De Campo, Liliana*; Varslot, Trond*	Liquid Crystalline Structures in Star-Shaped Polyphiles and Their Dispersions in Aqueous Medium	29-Oct-10	31-Oct-10	$1,275

	Grants Program	Giulian, Raquel*; Afra, Boshra*; Araujo, Leandro*; Rodriguez, Matias*	Swift heavy ion induced porosity and structural modifications in amorphous Si and Ge layers	19-Feb-10	21-Feb-10	$1,415
	Grants Program	Kluth, Patrick*; Afra, Boshra*; Rodriguez, Matias*	Ion Track structure in geological materials	23-Apr-10	26-Apr-10	$1,415
	Grants Program	Kluth, Patrick*; Afra, Boshra*; Rodriguez, Matias*	Ion track damage recovery studied by in-sity annealing SAXS experiments	22-Jul-10	25-Jul-10	$1,415
	Grants Program	Ridgway, Mark C*; Araujo, Leandro*; Decoster, Stefan*; Giulian, Raquel*	Characterisation and manipulation of the occupied lattice sties of implanted manganese in germanium	16-Dec-10	20-Dec-10	$1,415
	Grants Program	Ridgway, Mark C*; Araujo, Leandro*; Decoster, Stefan*; Giulian, Raquel*	Impurity clustering in electronic and photonic materials	25-Nov-10	31-Dec-10	$1,415
	Grants Program	Rodriguez, Matias*	Swift Heavy ion induced structural modifications in amorphous metals	17-Oct-10	31-Oct-10	$1,415
	International Synchotron Access	Araujo, Leandro*; Giulian, Raquel*; Ridgway, Mark C*	Structural characterisation of ion-beam modified GeSbTe-Part ll	20-Oct-10	30-Nov-10	$1,415
	International Synchotron Access	Kluth, Patrick*; Afra, Boshra*	Ion track structure in Durango apatites:dependence on geological parameters	20-Nov-10	22-Nov-10	$1,015

BASF Aktiengesellschaft	Grant	Knackstedt, Mark*	Characterization of foam morphology and simulation of mechanical and thermal foam properties	01-Sep-02	01-Sep-10	$75,000
BP America Production Company	Consultancy	Knackstedt, Mark*	Licence Agreement between the Australian National University and BP America Production Company	15-Dec-08	30-Jun-10	$69,594
BP Exploration Operating Company Ltd	Research Contract	Knackstedt, Mark*	Micro CT System Customer Agreement	22-Feb-09	30-Jun-10	$468,599
Commonwealth Department of Defence, Defence Science and Technology Organisation (DDST)	Research Agreement	Lam, Ping Koy*; Buchler, Benjamin*; Ralph, Timothy Cameron#; Sellars, Matthew*	Quantum Memory Study	18-Mar-10	31-Oct-10	$64,515
Commonwealth Department of Education, Science and Training (DEST)	Australia-India Strategic Research Fund	Jagadish, Chennupati*; Ashrafi, Abm (Almamun)*; Gupta, Vinay#; Sreenivas, Kondepudy#; Tan, Hoe Hark*	Multifunctional Zinc Oxide Films for Acoustic and Optoelectronic Sensing Device applications	25-May-07	29-Jul-11	$120,000
	Major National Research Facility Program	Blackwell, Boyd*; Harris, Jeffrey*	Australian National Heliac Plasma Facility	07-Dec-95	30-Jun-10	$8,700,000
	Major National Research Facility Program	White, Timothy*; Senden, Timothy *	Australian Microscopy and Microanalysis Research Facility (externally led by University of Sydney)	01-Sep-07	30-Sep-12	$1,004,000

Commonwealth Department of Foreign Affairs and Trade, Australia-Korea Foundation	Grants Program	Dewar, Robert*; Blackwell, Boyd*; Gardner, Henry James*; Hole, Matthew*; Howard, John*; Samarian, Alex#; Von Nessi, Gregory*	Feasibility study of Australian-Korean research in fusion science centered on the KSTAR superconducting tokamak	01-Feb-10	30-Jun-10	$19,558
Commonwealth Department of Innovation Industry Science and Research (DIISR)	Australian Space Research Program Stream B: Space Science & Innovation Project Grants	Shaddock, Daniel*; McClelland, David*; Tregoning, Paul*	The GRACE Follow-on mission	01-Aug-10	30-Jun-13	$4,673,001
	Consultancy	Jagadish, Chennupati*	ARCNN Funding Agreement	30-Mar-10	30-Jun-10	$50,000
	Consultancy	Jagadish, Chennupati*	Indo-Australian Workshop on Nanotechnology	20-May-10	01-Jul-11	$50,000
	Consultancy	Jagadish, Chennupati*	Long Term Impacts and Future Opportunities for Nanotechnology (Australian Delegation: Singapore Workshop-July 10)	28-Jun-10	31-Aug-10	$37,200
	Education Investment Fund	Blackwell, Boyd*; Howard, John*; Punzmann, Horst*	Plasma Fusion Education Investment Fund Project	24-Dec-09	31-Mar-14	$7,000,000
	Education Investment Fund	Fifield, L Keith*; Elliman, Robert*; Hinde, David*	Heavy Ion Accelerator Education Investment Fund Project	24-Dec-09	31-Mar-14	$10,000,000
	French-Australian Science and Technology Program	Boswell, Rod*; Brault, Pascal#; Caillard, A.#; Charles, Christine*; Corr, Cormac*; Hudspeth, Jessica*	Plasma Processing Techniques and Nanotechnology for Proton Exchange Membrane Fuel Cells	01-Apr-10	01-Jul-12	$20,000

	International Science Linkages Competitive Grant	Hole, Matthew*; Appel, Lynton C#; Blackwell, Boyd*; De Bock, Maarten#; Dewar, Robert*; Howard, John*; Martin, Richard#; Michael, Clive#; Nuehrenberg, C.#; Scannell, Rory#; Svensson, Jakob#; Wisse, Marco#	Model/data fusion: using Bayesian inversion to constrain equilibrium and stability theory of advanced magnetic confinement experiments ahead of the International Thermonuclear Experimental Reactor	27-Oct-08	31-Mar-12	$395,051
	International Science Linkages Program (pre 2008)	Buckman, Stephen*	Positron and Electron Induced Processes	13-Apr-07	31-Aug-10	$620,500
	International Science Linkages Program (pre 2008)	Howard, John*; Boivin, Rejean#; Chung, Jinil#; Jaspers, Roger#	Using advanced optical technologies to help control and optimize performance of fusion reactors	19-Aug-07	31-Mar-11	$505,279
	International Science Linkages Program (pre 2008)	Jagadish, Chennupati*	Optical Studies of Single Quantum Dots and Quantum Dot Molecules for Quantum Information Technology	08-May-06	31-Aug-10	$149,600
	International Science Linkages Program: Australia-China Special Fund for S&T Cooperation	Craig, Vincent*; Zhang, Guangzhao#	Design, Synthesis and Characterization of New Polymeric Antifouling Materials	28-Jan-10	30-May-12	$38,305
	International Science Linkages program: Australia-Europe Research Collaboration Fund	Jagadish, Chennupati*; Williams, James S*	Emerging Materials, Processes and Nanotechnologies for ICT, Manufacturing, Health, Environment and Energy Applications	27-Jul-09	14-May-10	$50,000

	International Science Linkages Program: French-Australian Science and Technology Program	Hyde, Stephen*; De Campo, Liliana*; Ramsden, Stuart*	Star polyphiles: 3D polycontinuous mesphases	06-Mar-08	31-Jan-11	$13,600
	International Science Linkages Program: French-Australian Science and Technology Program	Neshev, Dragomir*; Minovich, Aliaksandr*; Sukhorukov, Andrey*; Wolfersberger, Delphine#	Control of light in periodic photonic structures: from waveguides to cavities	01-Mar-08	28-Feb-10	$20,000
	International Science Linkages Program: Workshop	Jagadish, Chennupati*	Nanotechnology, Materials & Production Workshop 7th June 2010	07-Jun-10	07-Jul-10	$20,000
Commonwealth Scientific and Industrial Research Organisation (CSIRO)	Consultancy	Chadderton, Lewis*	Swift Ions	10-Aug-98	09-Aug-10	$150,000
DigitalCore Pty Ltd	Micro CT Systems Sale	Senden, Timothy *	Micro CT Systems sale to Digital Core Laboratories	29-Dec-09	31-Dec-10	$1,490,000
Electro-Optic Systems Pty Ltd	Consultancy	Luther-Davies, Barry*	Electro Optic Systems (EOS) Service Contract	01-Jul-08	30-Jun-11	$4,800
Embassy of Italy	Conference Support Scheme	Aste, Tomaso*	New Materials and Complexity Conference	01-Dec-02	31-Dec-12	$10,000
European Commission	External Relations Grant	Faletic, Rado*; Desvignes-Hicks, Jean-Francois*; Matthews, Mark*	FEAST Extension, Enhancement and Demonstration Project	01-May-08	01-Jul-11	$1,440,471
	Seventh Framework Programme (administered by another institution)	Bachor, Hans*; Janousek, Jiri*; Lam, Ping Koy*; Wagner, Katherine*	High Dimension Entangled Systems ("HIDEAS") (externally led by multi institutions)	01-Jan-09	31-Dec-11	$40,465
Go8/DAAD	Australia-Germany Joint Research Co-operation Scheme	Arns, Christoph*; Knackstedt, Mark*; Madadi, Mahyar*; Mecke, Klaus#; Robins, Vanessa*; Schroder-Turk, Gerd#	Dependency of elastic and transport properties of soft or porous materials on morphological properties	01-Jan-08	31-Mar-10	$19,400

	Australia-Germany Joint Research Co-operation Scheme	Byrne, Aidan*; Timmers, Heiko#	Transition metals in wide band gap semiconductors	01-May-10	31-Dec-10	$9,800
	Australia-Germany Joint Research Co-operation Scheme	Byrne, Aidan*; Vianden, R#	Magnetic semiconductors: transition metals in wide band gap semiconductors	01-Mar-08	31-Mar-10	$23,200
	Australia-Germany Joint Research Co-operation Scheme	Kluth, Patrick*; Giulian, Raquel*; Klein, Robert#; Neumann, Reinhard#; Schuster, Beatrice#; Trautmann, Christina#	Ion Tracks in Semiconductors and Insulators	01-Jan-09	31-Dec-10	$19,200
	Australia-Germany Joint Research Co-operation Scheme	Ridgway, Mark C*; Araujo, Leandro*; Schnohr, Claudia*; Steinbach, Tobias#; Wendler, E#; Wesch, Werner#	Structural modification of semiconductors induced by swift heavy-ion irradiation	01-Jan-08	31-Mar-10	$22,000
Japan Oil, Gas and Metals National Corporation	Research Agreement	Knackstedt, Mark*; Arns, Christoph*; Pinczewski, Wolf Val#; Senden, Timothy *; Sheppard, Adrian*	Digital Core Research Consortium	13-Jul-06	28-Feb-11	$2,609,279
John Morris Scientific P/L	Consultancy	Blackwell, Boyd*	Plasma Special Account	28-Nov-79	31-Dec-20	$12,000
LAM Research Corporation	Grant	Charles, Christine*; Boswell, Rod*	Development of a new plasma source for next generation plasma etch processing equipment	01-Nov-10	20-Jan-12	$371,167
Lawrence Livermore National Laboratory	Consultancy	Bradby, Jodie*	Nanoindentation of Films	01-Sep-03	30-Sep-10	$9,094
National Health and Medical Research Council (NHMRC)	2009 Project Grant	Knackstedt, Mark*; Seeman, Ego#; Price, Roger#	Bone Fragility: The Neglected Role of Cortical Porosity (externally led by Melbourne University)	01-Jan-10	31-Dec-12	$120,000
	2009 Project Grant	Rode, Andrei V*; Desyatnikov, Anton S*; Krolikowski, Wieslaw*	Optical Vortices for Trapping and Guiding Nanoparticles in Air	01-Jan-09	31-Dec-11	$481,825

Research Laboratories of Australia	Sponsored research	Craig, Vincent*; Craig, Vincent*; Fogden, Andrew*; Notley, Shannon*	Study of interfaces stabilized by nonionic dispersing agents in organic solvents - fundamentals of liquid toners	12-Jun-09	12-Jun-10	$60,000
Sirtex Technology Pty Ltd	Consultancy	Senden, Timothy *	Research and Development Consultancy Agreement (Sirtex Technology Pty Ltd)	01-Apr-10	01-Apr-12	$1,466,643
Universidad de Zaragoza		Hinde, David*; Dracoulis, George*	Accelerator Mass Spectrometry - Sale of Chlorine Samples	01-Jan-92	31-Dec-20	$3,678
University of New South Wales	Research Consortium	Knackstedt, Mark*	Micro CT facility software analysis	01-Jul-02	31-Dec-20	$256,468
	Research Consortium	Knackstedt, Mark*; Pinczewski, Wolf Val#	High Resolution X-Ray CT Scanner	01-Apr-05	31-Oct-11	$1,092,500
University of York	Consultancy	Weisser, David*	Special Fund for Department of Nuclear Physics for Collaborative Work with Various Outside Organizations	09-Jan-79	31-Dec-20	$10,000
Vita Medical Ltd	Consultancy	Knackstedt, Mark*	Scanning Probe Microscopy Laboratory	01-Jan-91	31-Dec-20	$17,672

ARIES 18/07/11

School Resources

Mr Rana Ganguly

School Administration

School Manager
Rana Ganguly

EA to Director
Laura Walmsley (until May)
Deborah Bordeau (from June)

School Outreach
Tim Wetherell

School Development
Kavitha Robinson (from February)

School Projects
Liz Micallef (from September)

School Stores
Ken Staples
-Richard Adamow
-Goran Radovanovic

School Computer Unit
James Irwin
-Martin Conway
-Julie Dalco
-Deane Larkman

School Technical Services

Facilities & Services Manager
Graeme Cornish
-Ronald Cruikshank (until July)
-Josephine Ivanic
-Lyndell Paseka
-Susie Radovanovic

Electrical
Patrick Lang
-Christopher Gordon (from July)
Carpentry
Anthony MacKey
-Tristan Kent

Mechanical Workshop
Thomas McGuinness
-Anthony Barling
-Thomas Cave
-Steve Holgate
-Owen Kershaw
-Richard Kolterman
-Miroslav Peric
-Gordon Scott (until November)
-Matthew Wallace
-Craig Young

Electronic Workshop
David Anderson
-Dennis Gibson
-Steven Huynh
-David Kelly
-Steven Marshall
-Luke Materne (from February)
-Wasantha Ramasundara
-Paul Redman
-Daniel Tempra
-Oliver Thearle
-Andrew Zeylemaker

Joint Administration Group

Administrative services are now provided by the Joint Administrative Group (JAG) through the College of Medicine, Biology and Environment (CMBE) and the College of Physical and Mathematical Sciences (CPMS) for the following:

- Finance
- Human Resources
- Information Technology
- Marketing & Communications
- Research Management
- Student Administration
- Teaching and Learning

JAG General Manager
Ms Anne Kealley