



Australian
National
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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 - 45% (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

During 2010 the following staff received 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, Vice-Chancellor's Award for Career Achievement

-Dr Darren Goossens, Vice-Chancellor's Award for Excellence in Education

-Dr Joseph Hope, Vice-Chancellor's Award for Excellence in Education

-Mr Bernie King, Vice-Chancellor's Award for 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 Hans Bachor (Co Chair) and Ken Baldwin – Local Organizing Committee, International Conference on Atomic Physics, Cairns (25-30 July)
- Professor Stephen Buckman – Chair, 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