

HEAD'S MESSAGE

PROFESSOR DAVID N. JAMIESON



The School of Physics was delighted to learn in October of 2010 that our bids to be part of three new Australian Research Council Centres of Excellence were successful. From 2011 onwards

Professor Geoff

Taylor will make us the headquarters of the Centre of Excellence for Particle Physics at the Tera-Scale, Professor Lloyd Hollenberg will bring us into the Centre of Excellence for Quantum Computation and Communication Technology and Professor Stuart Wyithe will bring us into the Centre of Excellence for All-sky Astrophysics. These new Centres will join Professor Keith Nugent's continuing Centre of Excellence for Coherent X-ray Science. Collectively these Centres will bring a substantial number of new staff, facilities and exciting research projects of international significance into the School along with the successful ARC DP applications that were awarded to Les Allen (Professorial Fellowship), Chris Chantler, Andrew Melatos, Ann Roberts, Jeremy Mould and Daniel Gomez.

We also learned that the Excellence in Research for Australia (ERA) evaluation exercise conducted by the Australian Research Council in 2010 awarded all our research areas the highest allocated ratings in Australia. Using a combination of metrics and peer review, ERA found our research work to be "... characterised by evidence of outstanding performance well above world standard presented by the suite of indicators used for evaluation".

The physical infrastructure of our building will undergo a major upgrade in 2011 to house the new Centres along with the major works on the second level of the south wing to house a new graduate student centre for teaching and

administration of the MSc degree. This will create an exciting new space where we can also stage conferences.

Our staff and students have been recognised for their accomplishments: The Australian Institute of Physics' Alan Walsh Medal for Services to Industry for 2010 was awarded to Rob Scholten for his thriving spin-out company "MOGLabs" providing advanced products for optics research; The Australian Optical Society (AOS) Postgraduate Student Award for 2010 was awarded to Sebastian Saliba; at the 2010 AIP Congress PhD student Elaine Miles was awarded the 2010 Warsash Award for Science Communication; PhD student Babs Fairchild received the Young Investigator Oral Presentation award at the recent Diamond 2010 Conference in Budapest; The Chancellor's Prize for Excellence in the PhD Thesis was awarded to Andrew Martin. We also congratulated Jeff McCallum and Andrew Melatos on their promotions to Associate Professor and Andrew Greentree and Harry Quiney on their promotions to Principal Research Fellow effective January 1 2011.

We have also been busy explaining our work to the wider public: we had a packed program of July lectures celebrating the 50th anniversary of the laser. People from the School of Physics had numerous mentions in the mass media in association with their research at CERN, on the Bionic Eye projects, programming single electron spins in quantum devices and the quest to develop geothermal power.

To top off a very successful year, both Professor Ray Volkas and Steven Prawer were elected as fellows of the Australian Academy of Science. We look forward to an even busier 2011!

Professor David N. Jamieson



2010 VICTORIAN HONOUR ROLL OF WOMEN

2010 marked the 10th anniversary of the Victorian Honour Roll of Women which recognises and celebrates the achievements of remarkable Victorian women.

All of the 20 inductees for 2010 have used their skills, knowledge, and commitment to better their communities. They have excelled in their chosen fields and are testament to the depth of talented women we have in this State.

Professor Rachel Webster joined this remarkable group of 458 women who have been honoured over the last 10 years and she has been recognised as being a leading Australian astrophysicist and role model for women in this traditionally male-dominated field.

As Victoria's first and Australia's second full-time female professor Rachel has made significant research accomplishments which are complemented by her work outside astrophysics, particularly on climate change and alternative power.

It was an outstanding year for Rachel who was also awarded the Australian Learning & Teaching Council 2010 Citation for Outstanding Contributions to Student Learning.

"I hope that I have enabled young women to understand that they are capable, and that they have something substantial and different to contribute to science" RACHEL WEBSTER



Prof. Rachel Webster being inducted to the Victorian Honour Roll of Women by Maxine Morand MP, Minister for Women's Affairs

ARC CENTRES OF EXCELLENCE

THE SCHOOL WILL BE PLAYING A KEY ROLE IN THREE NEW CENTRES STARTING IN 2011, WHICH WILL JOIN THE ONGOING CENTRE FOR CXS, LEADING TO AN UNPRECEDENTED CONCENTRATION OF CENTRES OF EXCELLENCE IN THE SCHOOL

CXS



The ARC CENTRE OF EXCELLENCE IN COHERENT X-RAY SCIENCE began in 2005 and recently received further funding to continue to bring together leading Australian researchers in the fields of X-ray physics, the design and use of synchrotron radiation sources, and the preparation, manipulation and characterisation of biological samples.

The CXS head office and administrating institution is based at the University of Melbourne School of Physics with participating notes at La Trobe University, Monash University, Swinburne University of Technology and the CSIRO.



CQC2T

The ARC CENTRE FOR QUANTUM COMPUTATION AND COMMUNICATION TECHNOLOGY is an Australian multi-university collaboration undertaking research on the fundamental physics and technology of building, at the atomic level, a solid state quantum computer in silicon together with other high potential implementations. The objective is underpinned by a vigorous semiconductor research program that includes a sophisticated quantum measurement capability at ultra-low temperatures.

CQCT was established in 2000 through funds from the Australian Research Council, the participating institutions are: University of New South Wales, University of Melbourne, University of Queensland, UNSW@ADFA, Griffith University, Australian National University and University of Sydney. The new Centre encompasses major research infrastructure, including an extensive semiconductor nanofabrication facility, crystal growth, ion implantation, surface analysis, laser physics, high magnetic fields/low temperatures, and has substantial theoretical support.

CoEPP

The ARC CENTRE OF EXCELLENCE IN PARTICLE PHYSICS AT THE TERA-SCALE will be lead by the University of Melbourne School of Physics and will explore particle physics at terascale energies (a million million electron volts) through the ATLAS experiment, a giant particle detector attached to the Large Hadron Collider at CERN.

The Centre will see scientists from the University of Melbourne, the University of Adelaide, Monash University, the University of Sydney and a host of international collaborators investigating fundamental particle interactions at higher energies. This will lead to more discoveries about the early stages of the evolution of the universe after the big bang.

CAASTRO

The ARC CENTRE OF EXCELLENCE FOR ALL-SKY ASTROPHYSICS team will pursue three interlinked scientific programmes, each of which can be addressed only with the all-sky perspective provided by wide-field telescopes: The Evolving Universe; The Dynamic Universe; The Dark Universe.

CAASTRO will assemble the world-class team needed to exploit the scientific potential of these exciting new wide-field facilities and will deliver transformational new science by bringing together unique expertise in radio astronomy, optical astronomy, theoretical astrophysics and computation, and by coupling all these capabilities to the powerful technology in which Australia has recently invested.

CAASTRO will be led by The University of Sydney, in conjunction with the Australian National University, the University of Melbourne, the University of Western Australia, Curtin University and Swinburne University, complemented by a group of world-class Australian and international partners.

AUSTRALIAN ACADEMY OF SCIENCE FELLOWS

March 2010 saw the announcement of the latest 17 people elected as Fellows to the Australian Academy of Science with two of our own, Professors Ray Volkas and Steven Pawrer included in the line-up.

Election to the AAS recognises research that has significantly advanced the world's scientific knowledge. Ray was elected for his research into theoretical particle physics, early universe cosmology and high energy astrophysics. Steven for the physics of diamond and related materials.

This is an enormous distinction for our new fellows and for the School.



Prof. Ray Volkas

Prof. Steven Pawrer

CLASS OF '70-79 SCHOOL OF PHYSICS REUNION

On Friday 2 July, 2010 the School of Physics hosted a reunion for Physics honours and postgraduate students from the 1970s.

The reunion was planned to coincide with the evening of the first 2010 July Lectures in Physics which was presented by Professor David Jamieson and was deemed a success providing a wonderful opportunity for those who attended to take a walk down memory lane.

"One of those memories was asking another research student (Liz Reen) out to a concert in that tea room.

She said yes and we're still together!" ANDREW SMITH

IF YOU HAVE ANY ADVICE OR SUGGESTIONS, PLEASE CONTACT:
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