
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.

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 Groningen

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

Tristram 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 Tkalčić 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 Physics 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

ANU Students

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

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

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

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