UOW PhD student Daniel Daly from the Engineering Faculty and Sustainable Buildings Research Centre, has been awarded a prestigious 2012 Endeavour Research Fellowship to undertake a research program at the University College London (UCL) in the area of optimal retrofit strategies to minimise electricity consumption.

Daniel’s research aims to identify and assess avenues to minimise electricity consumption, whilst maintaining acceptable Internal Environment Quality in commercial and educational buildings through technical retrofitting, and organisational and behavioural modification. A large part of the research will be focussed on the analysis of real world data from case study buildings, before and after a technical retrofit is undertaken.

The Endeavour award will assist Daniel to gain a complete picture of the global community’s response to the issue of climate change and gain a better understanding of people and energy, and the human dimension of energy use.

Daniel is currently supervised by Professor Paul Cooper and Dr Brad Stappenbelt.

fact that he is also an electrical engineering graduate. He was honoured for his immense contribution to the University's growth and international reputation by being awarded Professor Emeritus and an Honorary Doctorate. He also gave an inspiring address to graduates, reminding them that their training and ability gives them skills which they can and should aspire to use to make a difference to the world by improving social well being and quality of life.

Two additional awards were made to outstanding contributors to Faculty, University and the local and world communities. Professor Brendon Parker, a previous Dean of Engineering at Wollongong, previous President of The Australian Council of Engineering Deans and Chair of the 'Group of 8' Engineering Deans and internationally known for his contributions to Materials Engineering Research, was made Professor Emeritus of the University.

A further award was made to recognise Bob Wheway's extraordinary service to the University spanning 54 years. He is a mechanical engineer and was a teacher, researcher and Head of School until he retired many years ago but has continued to contribute with enormous energy, enthusiasm and ability ever since. For example, he single handedly designed and developed a series of engineering competitions at high schools at Years 10, 11, and 12 to encourage young students into engineering. He also raises sponsorship, mostly from Industry, to build this competition, initially in 6 local schools, to now be conducted through over 2000 high schools and colleges throughout NSW and the Australian Capital Territory. This is now the largest set of high school competitions anywhere in Australia and it makes a substantial contribution to the development of enthusiasm for, and engagement with, engineering and physics amongst young people. Bob was awarded the high honour of 'Fellow of the University' for this extraordinary work.

So congratulations to Gerard Sutton, to Professor Brendon Parker and to Bob Wheway, for such distinguished services to their professions, and as examples to our graduates of the social and technical contributions made by such leaders in their fields. However, just as importantly, we salute our graduates for their achievements and wish them similar fulfilling, productive and contributing careers into the future.

Congratulations to UOW graduate Dr Sakdirat Kaewunruen. He was recently recognised for his achievements in the fields of rail, civil and structural engineering at the Australian Institute of Policy and Sciences’ young Tall Poppy Awards.

The Tall Poppy Campaign was created in 1998 by the Australian Institute of Policy and Science (AIPS) to recognise and celebrate Australian intellectual and scientific excellence, and to encourage younger Australians to follow in the footsteps of our outstanding achievers. It has made significant achievements towards building a more publicly engaged scientific leadership in Australia.

Tall Poppy winners are required to become role models and inspire school teachers, students and the wider community about science. Dr Kaewunruen was honoured by the role and looked forward to promoting science and engineering as an exciting, cool and enjoyable career.

Associate Professor Alex Remennikov nominated Dr Kaewunruen for the award for his work in Track Engineering. Dr Sak Kaewunruen, in collaboration with industry partners, has helped change the philosophy for manufacture, design and maintenance of railway tracks. He developed a tool to investigate rail surface defects and three-dimensionally map crack spreading. He is also developing a new type of ‘smart track’, which will have inbuilt sensors to measure forces, vibrations and noise. Helping engineers better understand track/train interactions, enhance train services and reduce wastage of construction materials. He has also developed a national design standard of rail engineering and his research into concrete sleepers contributed to an innovative design allowing faster and heavier freight trains, thereby increasing efficiency. This has fundamentally changed the operation of railways, and his work has been recognised by many awards including the Engineers Australia’s Young Railway Engineer of the Year.

International Symposium of Weather Radar and Hydrology

Belated congratulations for undergraduate Physics student Kate Snow. In April, earlier this year, Kate attended the International Symposium of Weather Radar and Hydrology (WRaH) in Exeter, United Kingdom. At the conference she was awarded the 'Best Poster' award. This was quite an achievement as most of the participants were at PhD level.

The theme of the 2011 Symposium was on user applications of weather radar for flood forecasting and water management. At the conference Kate visited the Met Office Headquarters in Exeter and toured the new test radar for the flood forecasting centre. Of particular interest to Kate was the test radar which is dual polarisation and used to research and develop advanced hardware and software techniques. Kate also visited Lynmouth up in Exmoor National Park, scene of the most devastating floods of 1952 from a fluvial flood.

The highlight of Kate's visit was meeting Professor Frederic Fabry from McGill University, Canada, whose model was the basis for her thesis. Kate will now have a six page paper published in 2012 in the IAHS 'Red Book' of Symposium Proceedings.

For further information please visit the attached website: [http://www.wrah2011.org/](http://www.wrah2011.org/)

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Engineering Ball 2011

November 18th was the date and the Portofino Function Centre was the venue as the 2011 Engineering Ball came to town for what many regard as the highlight of the student social calendar. It was a combined end of exams celebration for the Civil, Mechanical, Materials and Mining Engineering Societies, with over 270 members attending – making it the biggest Ball yet!

This year, a number of awards were presented with the first ever ‘Honorary Life Membership of the Combined Engineering Societies’ being presented to Dr Bob Wheway. This award follows years of support for the student societies on campus, and as a thank you Bob was awarded a ceremonial ‘Golden Hard Hat.’

The night also saw the presentation of the incoming 2012 society presidents with Natali Boskovska, Samantha White, Erica D’Silva and Lachlan Cumming announced as the leaders of the Civil, Mechanical, Materials and Mining societies, respectively. In what could be considered a great coup for Women in Engineering, it is great to see three out of four club presidents are now women.

Everyone had a great night and a huge thank you to all who attended as well as to the Portofino staff and the students Matthew Dawson and Rupak Karunakaran for organising the night. The focus now turns to a bigger and better 2012!
Success for Engineering Students at Jules Byrnes Student Seminar Evening

On the 30th of November the annual NSW Branch Materials Australia Jules Byrnes Student Seminar Evening was held at the University of Technology, Sydney (UTS).

The presentation night featured both a poster competition and an oral competition between students from the University of Wollongong, University of Technology, University of New South Wales, and University of Sydney.

The First Prize in the oral competition was awarded to Stefan Griesser, a PhD student from UOW’s Engineering Materials Institute (EMI) supervised by Professor Rian Dippenaar. The title of Stefan’s winning presentation was “The use of high temperature laser scanning confocal microscopy as a tool to increase the quality and productivity of automotive steel”. This presentation was based on his findings using an experimental technique he developed for high-temperature laser-scanning confocal microscopy in order to investigate selected microstructural phase transitions during the casting of automotive steels. The peritectic phase transition is the cause of a variety of problems in steel plants all over the world and forces the industry to cast these steels a lower productivity compared to other steel grades. Based on his findings Stefan is now able to give a detailed explanation of the root cause of these problems and work towards solving problems encountered with these steels, resulting in increased productivity.

First place in the poster competition was awarded to EMI PhD student, Iis Aisyah for her poster titled “Electric Discharge Assisted Mechanical Milling – New Process for Synthesis of ZrBN and TiBN” Iis Aisyah’s supervisors are Associate Professor Andrzej Calka and Dr David Wexler. The runner-ups were also from UOW, Azrin Chowdhury from Institute of Superconducting Electronic Materials (ISEM) and EMI, and Irin Sultana from Intelligent Polymer Research Institute (IPRI).

Congratulations to all the participants of the Jules Byrnes Student Seminar.

New VC visits Engineering

On Thursday 15th December 2011, the Faculty of Engineering hosted a morning tea to welcome Professor Paul Wellings as the University of Wollongong’s new Vice-Chancellor. The Vice-Chancellor was taken on a personal tour of the Faculty by Professor Chris Cook, Dean of Engineering, and introduced to the Engineering staff.

Professor Wellings, who is currently Vice-Chancellor of Lancaster University in north-west England, will take up the appointment on 1 January 2012.

He will succeed Professor Gerard Sutton, who has been UOW’s very successful and well respected Vice-Chancellor for the past 16 years.
Australia Unlimited Magazine

Professor Anatoly Rozenfeld, Director of Centre for Medical Radiation Physics at the University of Wollongong, was recently interviewed for the Australia Unlimited Magazine.

In the article Professor Rozenfeld talks about his early career and the influence established researchers can have on young scientists.

“I was educated by famous scientists”, (Anatoly studied at Saint Petersburg State Polytechnical University – famous for its Nobel Prize winners). “They taught us how to think, how to approach a problem”.

Professor Rozenfeld now receives international recognition for his research work in radiation physics including semiconductor radiation detectors and their application for mini and micro dosimetry in radiation therapy, radiation protection, nuclear medicine and space sciences.

The article provides an excellent overview of Anatoly’s research in cancer treatment.

For the full article please view the link http://www.brandaustralia.gov.au/Resources/Australia-Magazine.aspx

On another note, congratulations to Anatoly and his team of UOW researchers – Michael Lerch, Peter Metcalfe, and Marco Petasecca, and his hospital co-researchers for a successful NHMRC grant. The title of the winning grant was “Improving Radiation Therapy of Static and Moving Targets Using High Spatial Resolution Real-Tim Dosimeters”.

UOW Award Holder in Hong Kong Poly University

Hua Zhao, a PhD student from the School of Civil, Mining and Environmental Engineering in the Faculty of Engineering, has been awarded the Prime Minister’s Australia Asia Endeavour Award.

As part of the award, Hua is undertaking further research with Professor Teng and his research team from the Research Centre for Advanced Technology in Structural Engineering at Hong Kong Polytechnic University.

Her research area is in mesh-confined high strength concrete columns.

“I am keen to learn from the world’s leading research group in methodology for the theoretical analysis of confined concrete members”.

Whilst in Hong Kong Hua has also attended two conferences – the 3rd International Postgraduate Conference on Infrastructure and Environment (IPCIE-3) and the 5th Cross Strait Conference on Structural and Geotechnical Engineering (SGE-5). At the IPCIE-3 conference Hua presented a paper titled, “Experimental Investigation on the Viability of Using Metallic Mesh as Confinement Materials for HSC Columns”, co-authored by Associate Professor Muhammad Hadi.
Mining ACARP Project

The Faculty of Engineering miners – Associate Professor Naj Aziz, Dr Jan Nemcik and Dr Ting Ren have secured a new Australian Coal Industry Research Program (ACARP) project on the “Development of a new testing procedure for the assessment of resin performance in coal mines”.

This study is hoped to fill the wide gap in the lack of Australian standards for the installation of bolts in rocks, both in surface and underground structures. The project has secured $130,000 from ACARP with additional $25,000 from industry partners.

The project will be supported by several companies, namely, Anglo American Metallurgical Coal Pty Ltd, BMA Pty Ltd, Xstrata Coal Pty Ltd, Jenmar Australia Pty Ltd, and Minova Australia Pty Ltd. UOW research interests in rock bolting is primarily attributed to Naj’s dedicated work in rock bolting over many years.

The aim of ACARP is to resolve serious occupational health issues and address the many environmental and social impacts of mining. The Australian coal industry is one of the most technologically advanced in the world and ACARP has played a major role in that achievement.

Congratulations to Naj, Jan and Ting for another successful mining research grant.

34th Australian Transport Research Forum (ATRF 2011)

Maria Rashidi, PhD student from the school of Civil, Mining and Environmental Engineering (CME) recently presented a paper in the 34th Australian Transport Research Forum (ATRF 2011). Her paper, titled “Proposal of a methodology for bridge condition assessment” was co-authored by Associate Peter Gibson and sponsored by the SMART Infrastructure Facility.

The ATRF 2011 conference was held on 28th to 30th September 2011 in Adelaide. The ATRF is the peak annual transport planning and policy forum for both the public and private sectors. Since 1975, the Forum has made a real and considerable contribution to transport in Australia. It provides the opportunity to share in the latest research and initiatives, information and experiences; take part in discussions and debates; and network with colleagues from various parts of the world and from different fields of the transport sector.
Engineering Student Achievements

Our Engineering students have been very busy over the last couple of months. Below are just a few of their achievements:

**Ana Heitor**  
Ana Heitor, a PhD student in Geotechnical Engineering, was honoured with the Best Paper Award at the International Conference on Geotechnique, Construction Materials and Environment held 21-23 November 2011 in Tsu City, Japan, where over 100 papers were presented from all over the world.

Ana’s paper titled, "Varying Ground water level to minimise liquefaction hazards in urban areas" outlined how to minimise liquefaction of soils by varying ground water levels.

**David Cortie**  
PhD student, David Cortie, from the Institute of Superconducting and Electronic Materials, recently won the Best Student Presentation Award at the 17th AINSE Conference on Nuclear and Complementary Techniques of Analysis and 12th Vacuum Society of Australia Congress last week for his talk, “The magnetic Velcro effect: exchange bias in nanocrystalline films investigated with neutron and x-ray scattering”. David is currently supervised by Professor Xiaolin Wang.

**Mehmet Eren Uz**  
Engineering Manufacturing PhD candidate, Mehmet Eren Uz, participated in the 8th International Conference on Earthquake Resistant Engineering Structures (ERES 2011) which was held on 7 - 9 September 2011 at Chianciano Terme, Italy. Mehmet presented a paper entitled “Seismic history analysis of asymmetrical adjacent buildings with soil-structure interaction consideration”, which was co-authored by his supervisor Associate Professor Muhammad Hadi.

The paper was based on the importance of seismic response of adjacent buildings and the need for preventive pounding effect in preference to dealing with the aftermath of ground motions. The plenary paper was very well received by the audience and the conference had about 100 participants including leading national and international authors.

**Gang Rou (Danny) Peng**  
Congratulations to Gang Rou (Danny) Peng, for receiving the Best Paper Award in the field of “Mechatronic Sensing, Actuation and Control” at the 5th International Conference in Mechatronics Technology held in Melbourne two weeks ago. Danny is a HDR student (Masters by Research) and is currently supervised by Associate Professor Weihua Li.

The title of Danny’s paper was “Design and simulation of a self-sensing MR damper”. The presentation was about the design of a self-sensing Magnetorheological (MR) fluid damper for vehicle suspension system. The designed damper at one hand exhibits proper damping characteristic and on the other hand combats the self-sensing function compared to conventional counterparts, thus reducing the specification of external installed sensors at the suspension strut, which makes the whole system cleaner and more efficient.
Industry Graduates from Engineering Asset Management

Industry professionals from Railcorp, Ausgrid and Sydney Water participated in the Engineering graduation ceremony held on December 16th. These industry professionals completed the Graduate Certificate and Master programs in Engineering Asset Management as part of their professional development within their organisations. The Engineering Asset Management program started in 1992 and has had more than 400 students graduate who are working across various engineering sectors and industries. Engineering Asset Management is a growing discipline in the field of Engineering and has been uniquely designed for professionals to develop or enhance their skills in the strategic and tactical issues associated with the management of assets. Delivered from a strategic framework, the courses provide structured learning and development and they are delivered by industry experts. The courses take a problem-based approach to learning and are focused on evaluating potential solutions to challenges faced by organisations.

Engineering Asset Management is one of a suite of flexible/online delivery courses that the Faculty of Engineering offers to professionals. These courses seek to provide up-to-date, relevant knowledge to practicing engineers that is verified and is delivered in a sustainable manner in the fields of Rolling Stock Engineering and Asset Management.

Graduates and their families at the lunch hosted by the Faculty with Associate Professor Richard Dwight (in academic dress).
Congratulations to the 2011 Faculty of Engineering Graduates

Kylie White received the University Medal in the Faculty of Engineering and for the Bachelor of Engineering Honours-Bachelor of Commerce with Distinction.

Dr Ali Ghandeharioon from Iran received his PhD at the 16 December afternoon ceremony. He shared the big day with his wife Mahgol and other members of his extended family and the Illawarra Committee for International Students through which he had a close relationship.

Lyndal Evans graduated with a Bachelor of Materials Engineering (with Honours).

Nick Idziak graduated with a Bachelor of Civil Engineering (with Distinction).

Andrew McInerney celebrated his Bachelor of Mining Engineering (Honours) with parents Paul and Clare and grandmother Pat Hadley.

Dr Bob Wheway (admitted as a Fellow of the University), Vice-Chancellor Professor Gerard Sutton (admitted as an Honorary Doctor of Science and as an Emeritus Professor), Chancellor Jillian Broadbent, Dean of Engineering Professor Chris Cook and former Dean of Engineering Professor Brendon Parker (admitted as an Emeritus Professor).

Lorelle Pollard - Faculty of Engineering Faculty Manager, graduated with a Master of Strategic Management (with Distinction).
Celebrating Christmas with Engineering

Faculty Christmas party photos below, including the Postgraduate Christmas lunch, and the Engineering staff Christmas dinner 2011.

The Faculty of Engineering wishes you and your Family a very Merry Christmas, and a Happy, Safe & Prosperous New Year!