

More Prizes for UoW Formula

In 1981, the Society of Automotive Engineers (SAE) organised its first Formula SAE (FSAE) competition in Detroit. Since then, the Competition has expanded rapidly and there are now seven annual competitions held worldwide: two in the United States and one in each of the United Kingdom, Australasia, Japan, Italy and Brazil. These seven competitions attract over 300 student teams each year.

Beginning in 2001, UoW Formula (formerly UoW Racing) has competed in nine campaigns, five in Australia and four in the United States.

The Team's latest campaign was last month in Fontana, California, where 71 teams registered in the inaugural Formula SAE West Coast Competition. Once again, the

The UoW Formula team and (top right) Uow Formula Car.



team performed exceptionally well, finishing third overall. This position was based on very competitive performances in all of the dynamic events rather than in the static presentations.

The Team's positions in the dynamic events were:

- * Acceleration 4th
- * Skid Pad 13th
- * Autocross 3rd
- * Endurance-Economy 2nd



This year's team of 50 students is now working hard on producing yet another competitive car for this year's Australasian Competition at Werribee in December.

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Dean's Spot

One of the nine Engineering Professions we teach here at Wollongong is Mining Engineering. A modern mine is a complete engineering system involving everything from: electrical and computer engineering for powering and controlling machines and sensors and information systems; mechanical engineering for machine and mechanism design; civil and mining engineering for understanding and controlling ground, water, ventilation, roof, conditions etc; and environmental engineering for ensuring sustainability of mining and protection of the environment. All of these disciplines must combine to develop commercially and technically managed mines safely, and with environmental responsibility, to produce wealth and



employment for the community.

On 6th and 7th July we hosted the Annual 'Coal 2006' Conference. Delegates, many of them graduates of our Faculty, from consultants, suppliers and mining companies including several of the world's largest mining companies, such as Xstrata and BHP Billiton, came onto our campus to hear over thirty technical papers describing all aspects of research and operations needed to operate today's modern mines. To remain competitive, the mining industry is very alert to the need to ensure that engineers continue to invent new systems and create new processes and procedures to

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New PhD Scholarship in Mining

Minova Australia Pty Ltd of Nowra, the leading provider of solutions to the mining industry via innovative materials technology, has established a three-year PhD scholarship to study the evaluation of resin encapsulation quality in soft, hard and fractured rocks. The scholarship holder will be based primarily at the School of Civil, Mining and Environmental Engineering and will be supervised by Assoc. Professor Naj Aziz. The Co-supervisor to the project will be Andrew Sykes, who will provide industry representative supervision of the scholarship holder's activities when working at Minova. The integral components of the PhD Thesis include:

- Factors influencing the integrity of resin encapsulation and mixing in different strength rocks and cementitious composite materials;
- load transfer characterisation of bolt/resin and resin/rock interfaces;
- variations in resin annulus thickness and borehole diameter;
- resin migration and resin gloving.

The project will be a combination of both laboratory and field experiments. Minova Australia will also provide the

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improve all aspects of a mine's operations. Some of this very innovative work is being conducted by our own Mining Engineering staff; for example <http://www.uow.edu.au/eng/current/longwall/> and <http://www.uow.edu.au/eng/outburst/> are sites on our web page which show two very interesting research projects currently underway in our Faculty in underground coal mining. All this work is very strongly supported by Industry and such Industry-University collaboration helps ensure that Australian mines lead the way in developing 'world's best practices'.

necessary equipment, material and technical support to the project, which will amount to an equivalent of \$200,000 per year. The establishment of the scholarship comes after years of a close working relationship between Assoc. Professor Aziz and Minova Australia. Research on bolting technology is an ongoing research initiative of the mining group at UoW. In particular, our cutting edge research on the effectiveness of bolt surface configuration on

load transfer characterisation of different bolt surface configurations has gained international recognition as the sole centre of research in the field.

It is likely that this new joint initiative will extend to further research projects that both partners wish to pursue in the future, with the ultimate aim of Minova maintaining its dominant role as the leading supplier of innovative products and systems to the mining, tunnelling and civil sectors.

Research Day showcases collaborations



Prof. Rian Dippenaar (UOW) and Mr. Jim Williams (BlueScope Steel).

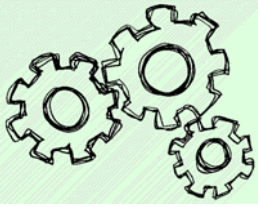
On Monday 26th June a Research Day was held at the laboratories of BlueScope Steel Research to showcase research collaboration between the University of Wollongong and BlueScope Steel. The day was organised by the BlueScope Steel Metallurgy Centre (BSMC) and opened by Geoff Warner, BlueScope Steel's Executive

Vice President Midstream. Geoff Warner is also the Chairman of the Board of the BSMC.

Around eighty people attended at least part of the day (thirty from UOW). There were presentations by fourteen researchers from the Faculty of Engineering plus four from other UoW faculties and nine from BlueScope Steel. The day provided an excellent forum for interaction between our staff and those at BlueScope Steel. This is the first time in several years that an event of this type has been organised by the BSMC and it is hoped to hold similar forums every 6-12 months in order to make our research collaboration with BlueScope Steel visible to a wider audience.



Dr Brian Monaghan presenting at a Research Day on June 26 showcasing research collaborations between UoW and BlueScope Steel.



Underground Coal Operators Conference

The 7th underground coal operators conference (coal2006) was held at the University of Wollongong, from 6 - 7 July, 2006. The theme of the conference was 'Sustainable Coal Mine Development'. The Conference was a joint initiative between the University of Wollongong Mining Group, the Illawarra Branch of The Australasian Institute of Mining and Metallurgy and Mine Managers Association of Australia. A total of 32 papers were presented over the two-day conference, with strong representation coming from Wollongong Mining Group. Topics covered included mine planning, ground control, mine gases and outburst, mine management, mine subsidence and environmental control and much more. The conference at-



tracted significant industry sponsorship. BHPBilliton -Illawarra Coal, Gujarat NRE Mines of Wollongong were major sponsors. Other sponsors included Minova Australia, Allied Mining, Delta Mining, and ERM (Environmental Rehabilitation management of Sydney).

The conference convenors were Naj Aziz and Walter Keilich. The conference is now recognised as the main forum for the exchange of ideas between mine operators, engineers and researchers in the diverse field of coal

Mining Engineering Scholarships

The recipients of the various companies' 2006 undergraduate scholarships for mining engineering students are:

Kate Leonard:
Seedsman Geotechnic Scholarship (\$7000)

Mitchell Hudson:
Xstratacoal Scholarship (\$7000)

Lachlan Grant:
Xstratacoal scholarship (\$7000)

Luke Viglione:
Walter Mining Scholarship

Brendon Rolls:
Theis Scholarship (\$7000)

Award for Prostate Cancer Research

Cutting edge research into prostate cancer has resulted in a University of Wollongong PhD student being granted a \$75,000 research scholarship from UOW's Centre for Medical Radiation Physics and the Australian Rotary Health Research Fund (ARHRF).

Last week, Nick Hardcastle officially received his award of \$25,000 per year to complete his research project titled on "Dose Adaptive Radiation Therapy for Prostate Cancer."

His research will involve looking at how new anatomy imaging devices can improve the precision of doses of radiation therapy given to patients with prostate cancer.

Nick will be supervised by Professor



Nick Hardcastle has received a scholarship to complete his research into the use of radiation therapy in treating prostate cancer. Pictured with (from left to right) UoW's Professor Peter Metcalfe, Research Manager from the Australian Rotary Health Research Fund, Dr Anthony

Anatoly Rozenfeld and Professor Peter Metcalfe.

"The prostate is a mobile organ and moves day to day during radiation therapy of prostate tumours," said Nick.

"New anatomy imaging devices can visualise the prostate in the anatomy on a day by day basis. The dose delivered

can then be reconstructed on these new in-room CT images and radiation therapy treatments can be altered daily to deliver an image guided dose to the prostate tumour which is precisely targeted.

"Hence sensitive structures, in particular the rectum and the associated side-effect proctitis, can be minimised."

The ARHF is one of the largest independent medical research funds in Australia.

Since its establishment in 1981 the fund has invested more than \$12 million in research projects ranging from cot death and adolescent health to the Ross River virus and bowel cancer screening.

Its current research focus is mental health. The ARHF has announced \$1.97 million in medical research grants for 2006.

Engineering Faculty stars in Trailblazer Awards

A low-cost drainage system and a self-cleaning water filter were the two innovative research projects that won top honours at the University of Wollongong's Trailblazer competition last week.

Trailblazer rewards and stimulates innovative thinking and early-stage research, which has the potential to benefit community, industry or business as well as generate a financial return.

The finalists had 10 minutes to pitch their ideas to a panel of judges before the award ceremony was held. Prize recipients shared in total prize money of \$14,000.

Dr Cholochat Rujikiatkamjorn along with Professor Buddhima Indraratna and PhD student, Mr Anass Attya, from UOW's School of Civil Engineering won the open category while Engineering PhD student, Mark Gaykema, and his team-mate, Mr Joseph Polder, won the student division.

Dr Rujikiatkamjorn's team has helped develop a low-cost drainage system that will significantly improve the stabilisation of soils in the construction industry.

Mr Gaykema's invention is a self-cleaning water filter that removes debris from water tanks to limit the amount of lost water and remove potential sediments that could create bacteria.

The Trailblazer competition was officially launched last year and proved a great success, motivating and showcasing the extraordinary talents of researchers and students at UOW. Several previous winners are working with UOW to turn their ideas into real-world commercial applications.

"The University of Wollongong was extremely pleased by the enthusiastic response from researchers and students to the inaugural event last year," said Pro Vice-Chancellor (Research), Professor Margaret Sheil.

"UOW runs the Trailblazer competi-

tion in collaboration with The University of Queensland's commercial arm, UniQuest Pty Ltd, which rewards and inspires researchers as well as promoting innovative research with commercial potential.

"Through Trailblazer, we want to encourage UOW researchers and students to consider the market potential of their research as well as increase an awareness across campus of the role we can play in helping to take innovative ideas and research through the commercialisation process - from protection to investment to start-up companies," said Professor Sheil.

At the University of Queensland, the



Award-winners Mark Gaykema (front row, second from left), Anass Attya (middle) and Dr Cholochat Rujikiatkamjorn (second from right) are pictured with the 2006 Trailblazer competition finalists

event has generated immense interest in commercialisation as well as unearthing projects that are now the basis of spin-off companies with venture capital investment.

For more details visit:
<http://www.uow.edu.au/research/trailblazer/index.html>

IEEE Phelps Award

UoW student, Andrew Wroe, has won the prestigious IEEE Phelps Award for PhD students for published papers and experimental research in SOI microdosimetry for proton therapy and space dosimetry applications.

Each year the IEEE NSREC (Nuclear Space Radiation Effects) Committee gives out two Awards to PhD students for outstanding contributions to IEEE NPSS related research.

This is the second time a student from the CMRP School of Engineering Physics at the University of Wollongong has received the Awards. In 2001 it was awarded to Iwan Cornelius for research in SOI microdosimetry.

This Award is excellent international recognition of direction in silicon microdosimetry led by CMRP in collaboration with ANSTO and, more recently, with the UNSW Centre for Quantum Computing in Australia and

Loma Linda Proton Therapy facility, and USNA in USA.

Other well recognized institutions to have received the Award are UCLA, MIT, BNL, LLNL and Sandia and other National US labs.

IEEE NPSS is the largest professional body in the field of physics of radiation detections, radiation instrumentation and their medical and other applications.

Diary Dates

11 July	Faculty Advisory Committee
18 July	WAC Committee, Physics & MMM Safety Committees
25 July	CME Safety Committee