ICRAR HAS ARRIVED
International Centre for Radio Astronomy Research

The International Centre for Radio Astronomy Research (ICRAR) had its official launch in Perth on the 1st of September. This new $100 million centre is a joint venture between The University of Western Australia (UWA) and Curtin University of Technology and is sponsored by the State Government with strong collaborative support from partners such as CSIRO and iVEC.

With standing room only in the 300 seat capacity auditorium of UWA’s University Club, the Centre launched to a veritable buzz of excitement as the West Australian Premier, Colin Barnett, the State Treasurer, Minister Troy Buswell, Professor Richard Schilizzi, Director of the International SKA Program Development Office (SPDO), and Lyn Beazley, WA’s Chief Scientist delivered the official proceedings.

Tasked with playing a pivotal role in Australia’s effort to secure the $2.5 billion Square Kilometre Array (SKA), ICRAR will help coordinate WA’s radio astronomy research and attract more than 30 new international astronomers, scientists and experts in related fields to the State.

UWA’s involvement in ICRAR is being led by School of Physics Premier’s Fellows Peter Quinn and Lister Staveley-Smith, who are, respectively, Director and a Deputy-Director of ICRAR.

SPDO Director Richard Schilizzi said “the centre will enhance Australia’s chances” and such a venture “shows that the infrastructure for radio astronomy in Australia is very strong.”

WA Premier Colin Barnett said “ICRAR will show Australia and the state are capable of delivering world-class technology and facilities” and “create opportunities for local industry to participate in the wider SKA project”.

See Page 7 for more on the Square Kilometer Array and ICRAR
It is a great pleasure to again have the opportunity to address you, the Alumni of the School of Physics. Recently, we have had much to celebrate.

Professor Mike Tobar from the School was named as one of only fifteen ARC Laureate Fellows in a recent ceremony at Parliament House in Canberra. The Laureate Fellowships represent the pinnacle of research achievement in Australia. In Mike’s case, the five-year Laureate Fellowship is worth $2.7m.

Not to be outdone, Eugene Ivanov has won the American Physical Society’s prestigious Joseph F. Keithley Award for Advances in Measurement Science. The award is “to recognize physicists who have been instrumental in the development of measurement techniques or equipment that have impact on the physics community by providing better measurements.”

The $100 million International Centre for Radio Astronomy Research (ICRAR), jointly funded by UWA, Curtin University of Technology, and the State Government, and located at UWA, was recently opened by the Premier. The School of Physics Premier’s Fellows Professor Peter Quinn and Professor Lister Staveley-Smith have been major drivers in the establishment of ICRAR, and their standing in the international astronomy and astrophysics community will see an influx of leading researchers from around the world into ICRAR.

The School recently took out three of the ten Future Fellowships awarded to UWA. Introduced by Minister Carr, the prestigious Future Fellowships are intended to support outstanding mid-career researchers, with 200 being offered in the initial round. Recipients from the School of Physics were Andre Luiten and Linqing Wen, and Dr Kenji Bekki from UNSW will be joining the UWA radio astronomy group.

In the recently announced ARC nationally competitive grants, the School of Physics won 16% of the total received by UWA. This is a great outcome for one of the smallest of the 33 Schools at UWA, and a testament to the quality of staff in the School. Included is an Australian Professorial Fellowship awarded to Professor Sergei Kuzenko, the second highest accolade (after the Laureate Fellowship) accorded to researchers by the ARC.

Physics Honours student Dustin Stuart is the recipient of the WA 2009 Rhodes Scholarship, an outstanding achievement. In response to an email congratulating him on the award, Dustin kindly acknowledged “it was the brilliance of the ‘all-star’ lineup of lecturers in first year that convinced me to pursue Physics.”

Congratulations also to Joseph Novak, winner of the 2008 JA Wood Memorial Prize, awarded to the most outstanding Honours graduand in the Faculties of Life and Physics Sciences, Natural and Agricultural Sciences, Engineering Computing and Mathematics, and Medicine and Dentistry. Joseph did his Honours project with Professor Sergei Kuzenko. The JA Wood Memorial Prize has been taken off by a Physics Honours graduand or a joint Maths and Physics Honours graduand for five of the last six years.

I would like to take the opportunity to wish all Alumni and their families a happy festive season and a great New Year.
Professor Mike Tobar from the School of Physics has been awarded Australia’s most prestigious Research Fellowship. Mike was one of two winners from UWA amongst the fifteen Laureate Fellows announced on the 22nd June 2009 by Senator Kim Carr (Federal Minister for Innovation, Industry, Science and Research).

Senator Carr said, “I created the Australian Laureate Fellowships to give researchers at the peak of their careers the opportunity to develop and mentor strong teams of emerging talents.

“As part of Australian Laureate Fellowships scheme, successful fellows will lead and mentor, the next generation of research leaders, helping to build Australia’s international competitive research capacity.”

Mike heads up the Microwave Division of the Frequency Standards and Metrology Group, and the award reflects the achievements of the whole group, particularly Professors Eugene Ivanov and John Hartnett, for their research into the development and application of ultra low noise cryogenic sapphire oscillators. The group has a long-standing collaboration with Poseidon Scientific Industries, a Fremantle high tech company led by Alumnus Jesse Searls, that has commercialized room temperature versions of the sapphire oscillators for applications including advanced radar systems.

As with all of the experimental research projects in the School, the technical staff in the workshop have been an essential part of the research team, their expertise in high precision machining and ultra high vacuum technology being without parallel in Australia. Credit should also go to Cyril Edwards, who during his term as Head of Department was instrumental in the formation of the Frequency Standards and Metrology Group, and he must have had an inkling that great things would emerge. The sapphire oscillators had their origin in the gravity wave project, on which Mike did his PhD under the supervision of David Blair.

When Mike was asked: Did he expect it? he replied, “I was very surprised and honoured, for me my work is a hobby that I love and that’s all. I didn’t expect to get the Fellowship.

“I will go on improving my work taking it to the next level giving myself higher goals to strive for with my family behind me every step of the way.”

On the 20th of May 2009 it was also announced by Dr Craig Emerson, the Federal Minister responsible for Australia's National Measurement Institute, that Mike was the winner of the Barry Inglis Medal, awarded for excellence in practical measurements by an individual in Australia.
Mysteries of Moon Dust

Even before Neil Armstrong said his famous words “One small step”, he spoke of his amazement at dust on the moon, and then left his iconic footprint in the dust.

9 hours before this, Professor Brian J. O’Brien (then Professor of Space Science at Rice University, Houston) quietly gave a yelp of joy when Buzz Aldrin reported clouds of dust about 100 feet above the lunar surface, stirred up by the rocket exhausts of the descending Lunar Module.

Brian knew that his 270-gram, matchbox-sized Dust Detector Experiment (DDE), one of only two active experiments Neil and Buzz would leave to transmit data to Earth, would have a job to do - defying the sceptics - measuring effects of dust and debris when the Apollo 11 astronauts departed.

Despite his 1970 publication, and although all 12 Apollo astronauts faced many difficulties and hazards from dust, only in the past 5 years has it become widely accepted that “Dust is the Number 1 environmental problem on the Moon.”

Theoretical models of movements of lunar dust were developed and promoted, and extensive and expensive laboratory simulations begun.

But they faced one fundamental problem, that of having little or no hard data, actual measurements made in the exotic dusty plasmas in which the astronauts walked. NASA had misplaced its tape records of data from Brian’s dust detectors. So Brian, after almost 40 years of research and strategic management of environmental problems on Earth, including being the foundation Director and Chairman of the Western Australian Environmental Protection Authority 1971-77, and now Adjunct Professor in the School of Physics, UWA, is revisiting his archives of unique measurements of the environment of the moon, working with US scientists and NASA.

His publication in Geophysical Research Letters in May 2009 gives the first measurement of the ‘stickiness’ of lunar dust that gave the astronauts so much trouble, as the dust was so easily stirred up and then “stuck to anything”. It defied astronaut housekeeping with a moon brush and a vacuum system.

He has published many of the “basics” of dust behaviour, and how the stickiness changes with intensity of sunlight on a surface. But many more studies are underway.

There are four little Dust Detectors on the Moon. Another was lost on Apollo 13, which also destroyed Brian’s major lunar experiment, the Charged Particle Lunar Environment Experiment (CPLLE), 1 of only 7 chosen from 90 proposals to be part of the remote scientific observatories left on each mission.

But Brian got both his CPLLE and another DDE deployed by Alan Shepard on Apollo 14. “CPLLE gave us various PhDs, and many valuable discoveries”, Brian said. “Now it’s time to see what the Dust Detectors can do.”

And Brian adds a plea to all, “In all the doom and gloom around, look up at the full Moon, and have the littlies look up too. Much more joy for their souls than texting. Just rejoice, and remember those 12 brave men who walked amidst the unknown. And wonder if an Aussie will walk there, too, in a dozen years’ time.”


Broad historical context is given in an ABC Catalyst “Moon Show” on 16 July 2009 commemorating the 40th anniversary of the Apollo 11 landing http://www.abc.net.au/catalyst/Moon.
I am in the process of writing a History of the Physics Department (as it was known prior to becoming a School) and in order to give it some ‘life’ and added interest, I have been contacting past graduates and asking them to reminisce about their experiences and recollections from earlier days. I have already received some wonderful recollections and when edited they will be included as Part 3 of the History. Part 1 covers the Growth and Evolution of the Department. This is almost complete and already on the web. Part 2 will include Short Histories of the Research Projects but these are still being compiled (and information will always be gratefully accepted).

For this Alumni Newsletter, I gathered together a number of extracts from reminiscences of the late 1950s but the three-page article was too long for the Newsletter format. Accordingly, I have decided to post it on the web, as a temporary component of Part 3 of the History which can be found at:

www.physics.uwa.edu.au/about/the_school/history

As you will be reminded in the article if you read it, in the 1950s the Department was housed in the original Physics/Chemistry building now occupied by Geology/Geography. The opportunity to undertake PhD degrees was only just becoming available across the University as well as within Physics. Because of this, students were unsure of the extent of equipment-building and research that would be required to satisfy the requirements for the degree, as judged by unknown overseas examiners. There was also a great shortage of money for research and the need to share larger items of test equipment between groups was commonplace.

There was also a great need for students to pool the knowledge they were gleaning from reading books and articles on how to design equipment and carry out research. This added a special importance to morning and afternoon tea breaks where questions could be asked of each other and problems solved jointly. This generated a tremendous camaraderie amongst the students, which has persisted throughout the lives of many of those who were there at that time. And so the recollections rolled on.

If you would like to read more about this in the words of those who were there, or relive the experience if you were part of that group, please go to the website (see above). Perhaps you are in the photograph of the group enjoying a drink at Steve’s.

Finally, if you are an Alumnus, I would be pleased to hear from you with any historical or anecdotal information that you can recall. If you have yet to attain Alumnus status, just remember that what you do today is the history of tomorrow.

John L. Robins, PhD 1962. robins@physics.uwa.edu.au

“There was also a great need for students to pool the knowledge they were gleaning from reading books and articles on how to design equipment and carry out research.”
Some of the life journeys of Dr Ralph James!

As a student at high school, I was inclined towards languages and their interrelationships. At the same time I was studying maths and physics. When I came to university I moved away from formal language studies and found myself continuing in physics and maths, eventually completing Honours and a PhD in experimental physics as part of the nascent Gravitational Wave Astronomy group under Roy Rand, David Blair and Cyril Edwards.

From a very early age I had a love of and interest in music. My studies in Physics led me naturally to question the physical acoustics of musical instruments and how this determines and structures musical scales and forms. All western music and most of eastern music is founded on the familiar twelve-note scale of the piano keyboard. Having convinced myself that I understood why this was so from physical principles I extended this concept to design and construct other scales and harmonic systems which are more appropriate to instruments not based on vibrating strings or air-columns.

For some years I worked as a professional musician in a group that became very popular locally, toured Australia with David Sanborn and released a number of albums. One of my compositions got into the Australian top fifty music charts and earned me a small income from royalties. When the band folded for various reasons I returned to the Physics Department at the University of Western Australia and enquired about possible employment.

The Head of Department at the time was Ted Maslen. He had completed his PhD with Dorothy Hodgkin who became the first Nobel Prize winner in the area of Biophysics. Ted was keen to set up a Biophysics undergraduate program at UWA and proposed that I take on the role of designing and implementing such a program. I knew very little about Biophysics and had a steep learning curve in related areas of the biological sciences. The course was developed with help from the local Medical Physics community and began in 1995 with the first intake of second year Biophysics students.

In reporting complex physical analyses to a judge and jury as an expert witness, I had to learn an appropriate language and manner of presenting my conclusions and opinions in a way that could be understood by members of the general public not trained in physics or science. As an example, there was a situation in one trial where the judge decided (rightly or wrongly) that I could not use the word 'likely' when referring to possible scenarios leading to the death of the victim. This presented a dilemma for me as I had always thought that referring to the likelihood of a particular outcome was an acceptable scientific expression. I wanted to make clear to the jury the difference between 'possible' and 'likely' when referring to a particular scenario. After some brainstorming outside the court and discussions with the prosecutors I chose to illustrate my use of the terms with a 50-cent piece which I produced from my pocket in the witness stand and balanced on its edge. My argument went something like this:

We all see that it is possible for a 50-cent coin to stand on its edge. What if I dropped such a coin from a few centimetres above the table – would it be possible for the coin to end up balanced on its edge? You might drop it repeatedly hundreds or thousands of times. It might not ever end up on its edge, but what if I dropped it millions or billions of times? As a physicist I know that such an outcome does not violate the laws of physics and yet I would not be surprised if I never saw it happen in any series of trials. Yet I must still present such an outcome as 'possible' however 'unlikely'. Whereas the alternative of the coin ending up on its flat side was not only 'possible' but extremely 'likely'.

In this manner I managed to clarify my expert evidence and opinions as to the 'possible' and 'likely' scenarios leading to the particular death of the victim and so get around the judge's concerns.

As an expert witness in a criminal trial, regardless of which side (prosecution or defence) calls you, you must take the approach that you are reporting to the judge (and jury) in an unbiased and rigorously scientific manner. In this case the accused was found guilty and the defence lawyers, impressed by my unusual demonstration, made a small trophy with a 50-cent piece mounted on a stand and referred to me as "Mr Fifty Cents".

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Western Australia is on a short-list of two to be the site for the multi-billion dollar Square Kilometer Array (SKA), a radio telescope of unprecedented resolution with a total collecting area of one square kilometer. The other potential location is South Africa.

And thus the battle lines are drawn between the MeerKAT Pathfinder radio telescope being built in South Africa and the Australian Square Kilometer Array Pathfinder (ASKAP) that is being set up at Boolardy Station east of Geraldton. With 36 dishes, ASKAP is approximately 1% the size of the anticipated full roll out of the SKA.

The overall SKA project is being developed by a consortium of 19 countries and will be the biggest land-based international science project in the history of mankind. Delegates from around the world gathered in Cape Town, South Africa in February 2009 for a series of SKA meetings, workshops and events. They noted that the State and Federal Governments had at that stage committed approximately $296 million to the international SKA program to bring this iconic global project to fruition. This has recently been supplemented with the $100 million International Centre for Radio Astronomy Research (ICRAR) and the $80 million Pawsey High-Performance Computing Centre for SKA Science, both located in Perth.

Delegates agreed that it is now time for Australia and South Africa to work more closely together in partnership to advance the global SKA program. To this end, South Africa and Australia will collaborate in the development of a coordinated scientific and technical program for the SKA pathfinder telescopes MeerKAT and ASKAP. The SKA pathfinder collaboration program will stimulate academic collaboration and exchange between Australia and South Africa. It will further leverage recent investments in astronomy in both countries, such as ICRAR in Western Australia and the South African Centre of Excellence in Radio Astronomy.

ASKAP, which is being built 200km west of Shark Bay and Meekatharra, is planned to be a radio telescope with 10,000 times greater potential for discovery than any of the world’s existing telescopes. The site is ideal for radio astronomy as the population is tiny and so there is an absence of man-made radio signals that would otherwise interfere with the incredibly weak astronomical signals. This remarkably radio-quiet site in Western Australia is in the process of being developed as the Murchison Radio-astronomy Observatory (MRO <http://www.atnf.csiro.au/projects/askap/site.html>) and is the Australian candidate site for the SKA.

Note: The information above was obtained in discussion with Professor Lister Staveley-Smith & Dr Martin Meyer from the School of Physics Astronomy and Astrophysics group.
The Gravitational Waves Research Group has had much to celebrate in recent months.

Their research has four different areas of focus. One is developing improved data analysis methods. Dr Linqing Wen, who leads this area, recently won an ARC Future Fellowship. The team, a part of the Australia-wide Consortium for Gravitational Wave Astronomy, were recently authors on a letter published in Nature in which the Laser Interferometer Gravitational-Wave Observatory (LIGO) data sets new limits on the strength of gravitational waves from the Big Bang, for the first time improving on theoretical limits based on the elemental abundance of atoms synthesised in the first minutes of the Big Bang.

A second area of focus is experimental studies of interferometer technology. In this area the team recently published a Physical Review Letter introducing a new type of amplifier called an opto-acoustic parametric amplifier in which laser light can directly extract energy from vibrating mirrors.

The third area of focus is the development of plans for the Australian long baseline gravitational wave detector AIGO (Australian International Gravitational Observatory). In this the team has been working to bring international groups into the project. In the last year international partners from Germany, France and India have expressed interest in joining the project, originally planned by Australia and the USA alone. Recently a Chinese group has also joined the project.

The Gravity Waves team have a symbiotic relationship with the Gravity Discovery Centre (GDC). This year they built a beautiful new Cladni Figure exhibit for the GDC and John Moore, a senior technician with the School of Physics, completed the display of the original Niobe gravitational wave detector in the Cosmology gallery.

One of the most exciting recent developments was the announcement of $780,000 funding for a science education research project with the GDC and the Polly Farmer Foundation, which will assess the effectiveness of education programs that include research projects using the Zadko Telescope, and other projects which will engage students by viewing indigenous cosmology in the context of modern scientific cosmology, using the exciting exhibition material at the GDC’s new Cosmology Gallery!
Professor Jingbo Wang was on study leave in the middle months of 2009. During this time she presented lectures and seminars at various universities and institutes around the world including:

- Tokyo University (Japan)
- University of Electro-Communication (Japan)
- Center for Quantum Information Science National Cheng Kung University (Taiwan)
- National Center for Theoretical Sciences (Taiwan)
- TsingHua University (Taiwan)
- Perimeter Institute of Theoretical Physics (Canada)
- University of Waterloo (Canada)
- National University of Taiwan
- NASA (Houston)
- Magtech Corp (LA, USA)

In addition, she also attended the following conferences:

- Quantum Engineering of Atoms and Photons (Zakopane, Poland)
- 4th Workshop on Theory of Quantum Computation, Communication and Cryptography (Waterloo, Canada)

Below is a pictorial essay of some of her travels, all taken with her trusty camera.

Eat your heart out Phineas Fogg!!

- Golden Japan shrine, Osaka
- Prof. Wang’s son (Eric) in London
- Perimeter Institute in Canada
- Houston University
- Niagara Falls in Canada
- Cherry Blossom Tree in Japan
- Taiwan
- Poland
Realization of a Dream
UWA Storms into Second Life

The dream to recreate the beautiful, picturesque grounds of the University of Western Australia in virtual 3-Dimensional glory began in May 2007 and resulted in creation of the UWA Virtual Universe and UWA’s triumph in the Google Earth ‘Build your Campus in 3D’ competition. This dream moved into a new dimension on the 2nd of October 2009. On this day, with Professor Alan Robson conducting the official ceremonies in a packed Ross Lecture Theatre, the creators of the Virtual Universe, Jay Jay Jegathesan (School Manager, Physics) and Dr Chris Thorne (Physics Honorary Research Associate) together with 3D visualisation guru, Paul Bourke, Senior Research Fellow with UWA’s Western Australian Supercomputer Program (WASP) launched UWA into Second Life (SL). SL is a virtual world accessible via the Internet which enables its users to interact with others through avatars. They are able to conduct research, teaching, socialize and participate in individual and group activities, create and trade virtual property and services or travel throughout the virtual world.

“Whatever you can do or dream you can, begin it. Boldness has genius, power and magic in it. Begin it now” were the words of Johann Wolfgang Von Goethe, explained Jay Jay.

“This has been the guiding principle behind all the fantastic things the team has been doing. UWA now has an incredible presence in Second Life, and in its short time within this virtual world has quickly become known as an international centre for research, teaching and art. I am thankful to our partners in this, Professor Ted Snell (Cultural Precinct), Dr Alexandra Ludewig (Faculty of Arts), Frank Roberts (Facilities Management), Dr David Savat (Communication Studies), Kirsten Harris & Alaine Haddon-Casey (UWA alumni) and also Systemic & VR Shed Pty Ltd”.

“The education sector within Second Life is growing rapidly. I feel we are at a stage where this is akin to the early days of television. I am convinced that within 15 years 3D virtual environments will become an integral part of our lives”, said Jay Jay.

He went on to add, "What distinguishes the UWA presence in Second Life is that we are attempting to cater for not only one or two small sectors. We have our beautiful clock tower, Hackett Hall, the Lawrence Wilson Art Gallery and the Sunken Gardens complete with our peacocks and ducks, and kookaburras. I think this is important for our alumni, especially those far away, so they can take a stroll down memory lane. For regional and international marketing, instead of showing prospective students photographs, we can ask them to explore our university in all her glory from the comfort of their own homes”.

Special theatres have also been built to allow for current students to attend in ‘avatar’ form where there will be the opportunity for them to interact and learn from internationally based lecturers and researchers.

Classes started in the second semester of 2009, with Professor Wade Halvorson of the School of Business, and Professor Mark Pegrum of the Graduate School of Education leading the way. A large section of the UWA Second Life environment has also been set aside for Collaborative Visualisation research, and this effort is being led by Paul Bourke, Senior Research Fellow at UWA’s West Australian Supercomputer Programme (WASP).

A year-long international 3D art and building design competition is also being run in collaboration with Professor Ted Snell, director of UWA’s cultural precinct. This competition has been extremely well received by the arts community and has put the University of Western Australia’s presence on the map with artists from Canada, the USA, Germany, Scotland, Sweden, England, Ireland, Spain, France, Brazil, Denmark, Holland and of course Australia participating.

An editorial in the September 1st edition of the West Australian, commended UWA on this effort stating, ‘The University of WA has responded to the effects of the global financial crisis with the resourcefulness and ingenuity we should be able to expect from centres of higher learning and research. It has set up a cultural precinct in a virtual world while it awaits better times for raising the money it needs to build new museums and galleries. Meanwhile its presence in the virtual world will help to draw more public attention to its cultural treasures: well done.”

Weblinks to UWA in Second Life
• http://uwainsl.blogspot.com
• http://twitter.com/UWAINSL
• http://www.koinup.com/UWAINSL/works/
• http://www.secondlife.com
<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
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<th>Award</th>
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<tbody>
<tr>
<td>July 09</td>
<td>Jacinta Delhaize</td>
<td>Student (PhD)</td>
<td>Runner-Up : Best Student Paper, 2009 Annual Scientific and General Meetings of the Astronomical Society of Australia, University of Melbourne</td>
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<tr>
<td>June 09</td>
<td>Prof Mike Tobar</td>
<td>Staff</td>
<td>Australian Laureate Fellowship</td>
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<tr>
<td>June 09</td>
<td>Stephan Karl</td>
<td>Student (PhD)</td>
<td>Ondek Award (Medical Research)</td>
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<td>May 09</td>
<td>Dr Mikhail Kostylev</td>
<td>Staff</td>
<td>Professeur Invite Fellowship, University Paris-Nord</td>
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<tr>
<td>May 09</td>
<td>Prof Mike Tobar</td>
<td>Staff</td>
<td>Barry Inglis Medal</td>
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| May 09  | Joseph Novak                | Student (PhD) | • Faculty of Life & Physical Sciences Medal  
|         |                             |         | • JA Wood Memorial Prize  
|         |                             |         | • Maslen Physics Prize                                                |
| May 09  | Gar Wing Truong             | Student (PhD) | Muriel & Colin Ramm Medal in Experimental Physics                   |
| May 09  | Jack Moore                  | Student (UG) | Tesla Prize and Medal in Experimental Physics  
|         |                             |         | Physics (Level 3 Prize)                                              |
| May 09  | Calyn Moulton               |         | Physics Achievement (Level 3) Prize                                  |
| May 09  | Dustin Stuart               | Student (PhD) | Peter Finlay-Jones Memorial Prize for Organic Chemistry             |
| May 09  | Leon Smith & Jeremy Bourhill| Student (UG) | Digby Fitzhardinge Memorial Prize (2nd Year)                         |
| May 09  | Leon Smith                  | Student (UG) | • Nicholas Searcy Calculus Prize (L1)  
|         |                             |         | • UWA Graduates Association Prize in Mathematics and Computer Science (L2) |
| May 09  | Callum Shakespeare          | Student (UG) | • Lady James Prize in Chemistry  
|         |                             |         | • Lady James Prize in Physics  
|         |                             |         | • Weatherburn Medal in Mathematics  
<p>|         |                             |         | • UWA Graduates Assoc. Prize in Physics, Geology &amp; Chemistry (L1)    |
| May 09  | Prof Mike Tobar             | Staff   | Honourable Mention: Gravity Research Foundation – Awards for Essays |
| Apr 09 | Zoe Budrikis                | Student (PhD) | Student Travel Scholarship for Collaborative Research, Australian Research Network for Advanced Materials (ARNAM), Florence, Italy |
| Apr 09 | Daniel Creedon              | Student (PhD) | Best Student Research Paper, Joint Meeting of the European Frequency and Time Forum and the IEEE International Frequency Control Symposium, France |
| Mar 09 | Jay Jay Jegathesan          | Staff   | Australian National Scrabble Championships (5th Place)               |
| Feb 09 | Daniel Creedon              | Student (PhD) | IEEE Ultrasonics, Ferroelectrics &amp; Frequency Control Organising Committee - Student Competition Travel Award |
| Jan 09 | Daniel Creedon              | Student (PhD) | UWA Graduate Research Student Travel Award                            |
| Jan 09 | Peter Metaxas               | Staff   | UWA Whitfield Fellowship                                              |
| Jan 09 | Prof Jim Williams            | Staff   | Endowed Hare Professorship Lecture Award                              |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Status</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec 08</td>
<td>Karen Livesey</td>
<td>Student (PhD)</td>
<td>Best Student Talk, Australian Research Network for Advanced Materials (ARNAM) Annual Meeting, Geelong (Deakin University)</td>
</tr>
<tr>
<td>Dec 08</td>
<td>Jacinta Delhaize</td>
<td>Student (PhD)</td>
<td>WA Premier’s Science Award: Science Student of the Year, University</td>
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<tr>
<td>Nov 08</td>
<td>Prof Mike Tobar</td>
<td>Staff</td>
<td>Fellow of Australian Academy of Science and Technology (AATSE)</td>
</tr>
<tr>
<td>Nov 08</td>
<td>Dr Luka Pravica</td>
<td>Staff</td>
<td>Australia-Italy Award, awarded by the Australian Academy of Science</td>
</tr>
<tr>
<td>Nov 08</td>
<td>Shane Chambers</td>
<td>Student (PhD)</td>
<td>Australian Acoustical Society Postgraduate Award</td>
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<tr>
<td>Nov 08</td>
<td>Annette Tyler</td>
<td>Student (PhD)</td>
<td>ARC Nanotechnology Network Overseas Travel Fellowship</td>
</tr>
<tr>
<td>Nov 08</td>
<td>Jay Jay Jegathesan &amp; Dr Chris Thorne</td>
<td>Student (PhD)</td>
<td>Learning Links Award</td>
</tr>
<tr>
<td>Nov 08</td>
<td>Toby Potter, Jacinta Delhaize &amp; Andre Fletcher</td>
<td>Student (PhD)</td>
<td>Champions - Inaugural UWA Amazing Race</td>
</tr>
<tr>
<td>Nov 08</td>
<td>Paul Brayshore</td>
<td>Student (PhD)</td>
<td>Barry Marshall Travel Award ($5000), Fremantle Hospital Medical Research Foundation</td>
</tr>
<tr>
<td>Oct 08</td>
<td>Vincent Ung</td>
<td>Student (PhD)</td>
<td>Best Student Oral Presentation, 8th Asia Oceania Congress of Medical Physics</td>
</tr>
<tr>
<td>Oct 08</td>
<td>Prof Bob Stamps</td>
<td>Staff</td>
<td>ARC Australian Professorial Fellowship</td>
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<tr>
<td>Oct 08</td>
<td>Annette Tyler</td>
<td>Student (PhD)</td>
<td>UWA Convocation Postgraduate Research Travel Award</td>
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<tr>
<td>Sept 08</td>
<td>Daniel Creedon</td>
<td>Student (PhD)</td>
<td>Best Talk, 11th Australian Institute of Physics Postgraduate Research Conference, Jarrahdale</td>
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<tr>
<td>July 08</td>
<td>Bradley McGrath</td>
<td>Student (PhD)</td>
<td>UWA Postgraduate Research Travel Award</td>
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<tr>
<td>June 08</td>
<td>Dr Jean-Michel Le-Floch</td>
<td>Staff</td>
<td>Early Career Award, Conference on Precision on Electromagnetic Measurement (CPEM), Denver</td>
</tr>
</tbody>
</table>

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