



THE UNIVERSITY OF  
MELBOURNE

# The School of Physics

Issue 5, December 2006

## Alumni & Friends Newsletter



### Growing Esteem & Melbourne Model

Last year, the University unveiled its new strategic vision, *Growing Esteem*, a plan for the future designed to capitalise and strengthen the University's excellence in research, learning, teaching and knowledge transfer. Underpinning *Growing Esteem* is the University's *Melbourne Model*, a far-reaching curriculum reform that represents one of the biggest changes in the University's 150 year history and one that has certainly attracted much media attention this year.

The *Melbourne Model* is characterized by a broad, general education 3 year undergraduate degree followed by more intensive, comprehensive postgraduate study at both Masters and Doctorate level. Vocational and professional programs will overwhelmingly be offered at graduate level. The objective will be to create an outstanding and distinctive 'Melbourne Experience' for all our undergraduate and postgraduate students.

The *Melbourne Model* will commence with the first year intake in 2008 and will be fully operational by 2015. The *Melbourne Model* will distinguish us from other universities in Australia and, because of its close alignment with European, Asian and North American traditions, will translate well internationally.

For the School, the progression of 3 year undergraduate, 2 year Masters and 3 year PhD offers a great opportunity for improving the students' physics education. The 2 year Masters with advanced course and project work will better prepare our students for the PhD and beyond. Planning for the new undergraduate and Masters degrees will absorb our attention (and any spare time!) in the coming years.



L-R: Ivy Wong (PhD candidate), Prof Rachel Webster and daughter Alex, Dr Duncan Galloway and Scott Daniel observe the transit of Mercury

### Thank you

Canon Information Systems Research Australia Pty Ltd, based in Sydney, have generously sponsored the "CiSRA Prize in Physics" at the School. The prize, worth \$2000 annually, is to be given to the PhD student who has submitted the best refereed publication.

Physicists **Dr Stephen Hardy**, Associate Research Manager, and **Dr Ian Gibson**, Deputy General Manager, both of the Advanced Technology Division, have had a long tradition in hiring graduate physicists in their company due to their strong technical and analytical skills.

### Cocktail Party and Launch

We will be also taking the opportunity to thank formally the **Klein family** for the support they have given the School. We will be officially launching the Klein Prize in Experimental Physics at a cocktail party to be held early in the new year. It will be a great opportunity to catch up with alumni and friends so be sure to look out for the invitation.

### Welcome

The School welcomes Lyle Fellow, Dr Mark Trodden, who is on 6 month sabbatical from Syracuse University. His research is focused on the intersection of cosmology, theoretical and gravitational physics.

### Transit of Mercury

When PhD candidate, **Mr Scott Daniel**, and Centenary Fellow, **Dr Duncan Galloway**, decided to set up the School's telescope on University grounds to track the transit of Mercury across the sun on 9 November 2006, they weren't prepared for the level of interest shown by the university community for the simple astronomy experiment. Despite the early morning start, groups of people came by to observe, initially confusing the sun spots for the planet.

Historically, transits of Venus and Mercury across the sun have been important in calculating the earth's distance from the sun, through a method called triangulation. Captain Cook's voyage was in part, carried out to measure Venus' transit from Tahiti in 1761. The next Mercury transit won't be seen in Melbourne for another 32 years until 13 November 2032.

For Scott Daniel, who obtained degrees and diplomas in physics, maths, education and science communication, studying astrophysics has been a long term goal and a new challenge, especially after working as a high school teacher, a communicator with Shell Questacon Science Circus and as a volunteer teacher in Vanuatu.



If you would like to drop us a line, please email us at [alumni@physics.unimelb.edu.au](mailto:alumni@physics.unimelb.edu.au). The information in this publication was correct at the time of printing. Authorised by Professor Geoffrey Taylor, edited by Joanne Kuluveovski, published by the School of Physics, University of Melbourne 2006 ©

## Profile - Dr Martin de Jonge

Martin De Jonge won the Vice-Cancellor's Prize for the best PhD student thesis in 2006 (one of four awarded). Under the supervision of A/Prof Chris Chantler and Zwi Barnea, Martin completed his thesis in X-ray optics, performing measurements of the mass attenuation coefficients of metallic molybdenum using the X-ray Extended Range Technique (XERT). Martin's thesis reports a new systematic effect due to the spectral bandwidth of the synchrotron x-ray beam that was used to make the measurement.

A procedure was developed to correct this effect and simultaneously to determine the bandwidth of the x-ray beam. Measured values are almost two orders of magnitude more accurate than previous literature values and are now recognised as the new standard for the testing of theoretical models of atomic and solid structure. Martin is currently undertaking postdoctoral work at Advanced Photon Source at Argonne National Laboratory.



Martin and his son Oscar.

## Publications

We hope you enjoy our new look Alumni & Friends Newsletter. If you prefer to receive this by email, please contact us.

The School's Annual Report for 2005 is now available on the web in electronic format only. For those who are interested in finding out about the School's achievements in detail, it can be found at [https://kiosk.ph.unimelb.edu.au/news\\_events/annual\\_reports](https://kiosk.ph.unimelb.edu.au/news_events/annual_reports).

## Prizes

We must congratulate the following on their recent awards and prizes!

**A/Prof Lloyd Hollenberg** has been awarded the ARC Australian Professorial Fellowship for his work in "Quantum nanotechnology: from concepts to devices".

**Dr Shane Huntington**, CEO of QCV, has been awarded a Victorian Finalist in the Young Tall Poppies Science Awards (<http://www.tallpoppies.net.au/awards/>) for his research in nanophotonics and QCV.

**Prof Bruce McKellar** has won the prestigious Massey Medal 2006 for contributions to physics made by an Australian physicist, awarded jointly by the Australian Institute of Physics ([www.aip.org.au/news](http://www.aip.org.au/news)) and the Institute of Physics (UK).

**Dr Stuart Wyithe** has been awarded the University of Melbourne's Woodward Medal, awarded annually to a member of staff for research that is considered to have made the most significant contribution to knowledge in a field of science and technology. His research, recently published in *Nature*, confirms experimentally the self-destructive behaviour of dwarf galaxies in the early universe. Stuart has also been awarded the ARC QE11 Fellowship for his research proposal "Formation of supermassive black holes".

**Alistair Stacey** and **Jennifer Thompson**, science/engineering undergraduates, were awarded first place in the Endeavour 2006 Program. Their project – Diamond as Ion Detector – supervised by Prof Steven Prawer (Physics) and A/Prof Peter Farrell (Electrical Engineering), utilises the secondary electron emissions from materials to convert a physical event such as a particle impact into an electrical signal. The invention also examines the benefits of diamond over silicon in detector technology. The "invention" was judged the project that demonstrated most commercial potential.

## Making News

**A/Prof Martin Seviour** "Bemoaning the dear bowser won't find new fuel technologies"; *The Australian*, 2 October 2006 for his work on the energy futures debate.

**Dr Roger Rassool**, "Fuel Cells and renewable energy" for children television program, *Scope*, 9 October 2006.

**Prof Geoffrey Taylor** "Voyage to the heart of the matter"; *The Australian*, 18 October 2006, for his work on the ATLAS project at CERN

**Dr Stuart Wyithe**, "Australia's Top 10 Scientific Minds Under 45"; *Cosmos*, Issue 10, September 2006

**Prof David Jamieson**, "Quantum leap in physics prospects"; *The Australian*, 7 September 2006 for his comments on the increased demand for physics graduates.