

July 2015 Newsletter Mathematics and Statistics

Emeritus Professor David Wall

Last month, the University Council conferred the title of Emeritus Professor on David Wall, who retired on 26 June after 34 years with the School. Drinks were held at the Staff Club on Friday 26 June to mark the occasion followed by a dinner the following Monday. Congratulations, David!



Over the last 6 months, Clemency Montelle was an invited researcher as part of a team of a dozen international experts to participate in an intensive multi-month workshop as part of the SAW project (Mathematical Sciences in the Ancient World). This was funded by the European Research Council Advanced Research Grant and hosted by Université de Paris-VII Denis Diderot. In addition to full-day seminars, small working groups, and visits to manuscript libraries and instrument repositories, Clemency participated in several international conferences, including one dedicated to Mathematical Practices in relation to the Astral Sciences. She also co-organised with European colleagues a workshop on Analysing and Editing Numerical Tables from Ancient Astral Sciences, at the Observatoire de Paris.

Photo above right: L'Académie des Sciences along with L'Académie des Inscriptions et Belles-Lettres are veritable pillars of French scholarship. Founded in 1666 by Louis XIV, these academic societies have been protecting and promoting French scholarship for centuries. It was a great privilege for Clemency to be invited to be a guest speaker at one of their Seances in the Grande Salle, a venue which was very grand indeed! She delivered a seminar as part of their celebrations for the Year of the Light (L'Année de la Lumière), naturally in French!

Doctor of Science (Honoris Causa)

The University Council will confer a Doctor of Science (honoris causa) on Professor Roy Kerr at a December graduation ceremony. Roy Kerr, our former Professor of Mathematics and Head of Department, retired in 1993. He is best known for discovering the Kerr vacuum, an exact solution to the Einstein field equation of general relativity, and was awarded the Hughes Medal of the Royal Society in London in recognition of this achievement. In 2011, Roy was made a Companion of the New Zealand Order of Merit (CNZM). He was the first New Zealander to be honoured by the Albert Einstein Society, Switzerland, which awarded him the Albert Einstein Medal in 2013. He also featured in the 2009 semi-biographical book *Cracking the Einstein Code*.

Conferences and Visits

Liz Ackerley: to attend the Elephant Delta Conference 2015, South Africa, 22-27 November.

Jennifer Brown and Raaz Sainudiin: attended the Environmental Criminology and Crime Analysis Symposium 2015, Christchurch, 22-25 June. (See photo below.)

Maarten McKubre-Jordens: invited speaker at International Seminar on Pluralism in Mathematics, Kolkata, India, 8–13 December.

Clemency Montelle: invited researcher at the Universite de Paris-VII Denis Diderot, January–June.

Rua Murray: to attend the 59th AustMS conference and speak in the Dynamical Systems special session, Flinders University, Adelaide, 27 September–2 October.

Raaz Sainudiin: UC School of Biological Sciences seminar titled *Towards a Behavioural Ecological Perspective of Population Genetic Processes: Insights from Chatham Island Robin and Florida Scrub Jay*, 23 July.

Raaz Sainudiin: research travel under a CORCON grant to Stockholm, 30 August–2 October.

Hilary Seddon: to attend the Elephant Delta Conference 2015, South Africa, 22-27 November.

Timm Treskatis: attended the British-French-German Conference on Optimisation, London, 15-17 June, and the SIAM Conference on Control and its Applications, Paris, 8–10 July. He has also visited Professor Endre Süli at Oxford University's Mathematical Institute. (See photo below.)



Left: Raaz Sainudiin, Jennifer Brown, and Steve Manion at the Wynyard Group-sponsored Environmental Criminology and Crime Analysis Symposium 2015, in Christchurch. Our former lecturer Dominic Lee and PhD graduates Xin Zhao and Steve Manion now work for the Wynyard Group, and Raaz is working there this year.

Below: PhD student Timm Treskatis in front of the “Grande Arche”, the 3rd largest and, thus far, last arch on the historic axis of Paris, in the Champs Elysées.

Successful PhD Defence

Congratulations to Marina Zahari who has successfully defended her PhD, which has been awarded with no emendations. Her thesis is entitled *Analysis of Oxygenation and other Risk Factors of Retinopathy of Prematurity in Preterm Babies* and she was supervised by Dominic Lee, Brian Darlow (Otago School of Medicine) and Marco Reale. Well done, Marina!

- Carl Scarrott



Research Tip of the Month

When I get stuck with a problem and do not make progress over a reasonable period of time, rather than get overly frustrated and do nothing, I let it rest for a while and work on a different problem or project. Far from abandoning the problem, I will come back to it later when a new idea or new approach emerges. Perseverance pays, after all.

- Gunter Steinke

The Feedback That Makes it all Worthwhile

Hilary Seddon received the following email from a happy STAT101 / MATH101 student who was thrilled with their S1 exam results:

"I think what really worked for me was going through all the quizzes over and over again until I was happy with my result and understood what I was doing. I know each one is only worth 1% but it all adds up! And in the exam, knowing that I already had 10% in the bag really helped me focus on doing well in the paper, not just scraping a pass. Thanks for making Stats so much fun. I really enjoyed the paper, which I didn't think would ever happen in a million years.

P.S. Some of us from MATH101 wrote an email to Rod Carr to express how great the course was – but you'll probably hear that from him!"

And here is that email to Rod Carr:

"Hello Rod,

Having recently completed my first semester of study at Canterbury University, I wanted to write a quick note on behalf of myself and some of my classmates, in praise of the math department.

The math department was consistently supportive of our development and learning throughout our first semester of study. They held drop-in problem sessions every day and all of the lectures and tutors were approachable and willing to take the time to help with even the smallest of questions or issues. They also went out their way to organise extra tutor groups as required. The department as a whole has a really great attitude toward us students and their enthusiasm is both very motivating and greatly appreciated.

Thank you for your time,"
(Signed by 8 students)

Papers Submitted

Yamada, S., Neshatian, K., and Sainudiin, R.: *Optimal Hyper-parameter Search in Support Vector Machines using Bezier Surfaces*, 28th Australasian Joint Conference on Artificial Intelligence, Canberra, 12 pages, 2015.

Papers Published

Sainudiin, R., Moyers-Gonzalez, M., and Burghelaea, T.: *A Microscopic Gibbs Field Model for the Macroscopic Yielding Behavior of a Viscoplastic Fluid*, *Soft Matter*, Journal of the Royal Society of Chemistry, 15 pages (2015), DOI: 10.1039/c5sm00857c.

Watson, N.A.: *Thermic Minorants and Reductions of Supertemperatures*, *Journal of the Australian Mathematical Society*, v.99 (2015), 128 – 144.

UC Statistical Unit's New Blog

After four years of advising researchers and postgraduate students on statistical practice, we have realized that having a blog would give us a fantastic opportunity to answer frequently asked questions (as well as some frequently unasked ones). And now we finally have it at <https://ucscu.wordpress.com/>. We promise it's not all about theory and programs, since actually understanding results and communicating them to other people is at least as important as applying the right methods. And so is asking the right questions (and the right people) in your survey. So we envision the new blog as a place not only for some in-depth how-to tutorials and expositions of theory, but also for small snippets of advice or useful programming tricks in R, WinBUGS, JAGS, SAS and SPSS, as well as occasional musings or books reviews. Besides the core team, we also hope to have occasional guest bloggers to keep this site lively and interesting. Currently we plan to keep to about one post a week. Please pay us a visit, spread the word, and of course let us know if you want to contribute.

Elena Moltchanova

News from the Library

- Library Liaison Officer for Mathematics and Statistics, Assoc. Prof. Marco Reale <http://bit.ly/1zwYHKa>
- New titles for Mathematics and Statistics <http://bit.ly/NVj1hV>; for Mathematical Statistics <http://bit.ly/MIS2WA>; new-titles-list generator <http://bit.ly/1brTI3E>

From the Web

- Obit. John Forbes Nash (Nature) <http://bit.ly/1HhLGtl>
- Read John Nash's Super Short PhD Thesis with 26 Pages & 2 Citations: The Beauty of Inventing a Field (Open Culture) <http://bit.ly/1JxGymY>
- Mathematician to Know: Emmy Noether (Symmetry Magazine) <http://bit.ly/1fs2vXT>
- Scientists Combine Evolutionary Biology and Mathematics to Reverse Antibiotic Resistance (The Pump Handle) <http://bit.ly/1I7pj8A>
- Why We Fell Out of Love with Algorithms Inspired by Nature (The Conversation) <http://bit.ly/1GjIRr3>
- A Polymath Opines: Charles Babbage's Other Interests (JSTOR Daily) <http://bit.ly/1KluK0h>
- How Often Should You Clean Your Room? (3quarksdaily) <http://bit.ly/1laxvHf>
- Elsevier Clashes with Researchers over Open Access Publishing for Academic Texts (ABC Radio National) <http://ab.co/1K5NQxc>
- Five Companies Control More Than Half of Academic Publishing (U Montréal) <http://bit.ly/1MpGLpX>
- Take Note [impact of texting and tweeting on academic performance] (InsideHigherEd) <http://bit.ly/1FFi9Fx>
- Pre-lecture Diagrams Help Students Take Better Notes, Learn More (Washington U St. Louis) <http://bit.ly/1KopWgy>

And on the lighter side...

- How Celebrity Faces Would Look If They Fit the Golden Ratio (WIRED) <http://wrd.cm/1GtVVw3>
- The Birthday Problem (Fake Science) <http://bit.ly/1H6SOc3>
- World's Hottest Maths Teacher Pietro Boselli: 'I model wet steam flow' (The Guardian) <http://bit.ly/1JPOeTo>
- Mathemacomics (Math with Bad Drawings) <http://bit.ly/1TNrpAY>
- Impact Factor Stolen in Daring Heist (C&EN Onion) <http://bit.ly/1TvgS7g>

John Arnold | Mathematics/Statistics Liaison Librarian