RUTHERFORD DISCOVERY FELLOWSHIP

Congratulations to Clemency Montelle who has been awarded a 5-year $800,000 Rutherford Discovery Fellowship grant to look at the benefits of historical Mathematics, Astronomy and Science in India. Her project is entitled New Perspectives on the History of the Exact Sciences in Second Millennium Sanskrit Sources.

Despite an intellectual history spanning almost 3,000 years and 30 million manuscripts having been produced over this time, India’s intellectual contribution to science remains largely absent from mainstream historical accounts. Clemency’s expertise in ancient languages including Sanskrit, coupled with her mathematical background, will enable her to work with those ancient documents to make them accessible to researchers around the world. With New Zealand seeking to strengthen its relations with India, the ramifications of contributing to that country’s heritage and the accessibility of its historic resources cannot be overestimated. Her project is in line with recent governmental strategies to enhance educational links with India. For example, the Government has welcomed the new NZ-India Research Institute. Also, the India-New Zealand Education Council recently held its inaugural meeting in Delhi to discuss how to boost cooperation between the two countries.

In her interview with the UC Communications and External Relations Office, Clemency said that this is a unique opportunity for the University of Canterbury to assume a lead role in such research and she looks forward to forging new and important relationships with key Indian tertiary institutions.

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CONGRATULATIONS TO OUR DEPARTMENT PRIZEWINNERS AND DECEMBER GRADUANDS

2012 Department Prize Winners: Benedict Morrissey (Page Prize), Jamie de Jong (W B Wilson Prize), Hadleigh Frost (Gordon Petersen Prize), James Spray (Statistics NZ Prize), Sophia Di (Helen Wily Prize), Yun Hee Choi (Peter Bryant Prize 100 level), and Amy Rice and Lawrence Dam (Peter Bryant Prize 200-level).

Students eligible to graduate this month: Simon Todd: BA(Hons) Mathematics; Peter Smale: Grad. Dip. Arts (Mathematics); Ciaran Doolin: BSc(Hons) Mathematical Physics; Timothy Lumb: BSc(Hons) Mathematics; Hugh Springford: BSc(Hons) Mathematics & Philosophy; Ahmed Yusuf: BSc (Finance & Statistics); Junfu Jiang: BSc (Management Science & Statistics); William Asiata: BSc (Mathematics); Fanyi Zeng: BSc (Mathematics); Quan Duy Ho: BSc (Mathematics); Liam Scott: BSc (Mathematics); Wei Xi: BSc (Mathematics); Rachel Gough: BSc (Mathematics); Ashley Wallace: BSc (Mathematics & Economics); Kam Keung Tse: BSc (Mathematics & Finance); Rebecca Tinga: BSc (Mathematics & Geography); Scott Allan: BSc (Mathematics & Statistics); Jianhui Bi: BSc (Physics & Mathematics); Megan Webber: BSc (Statistics & Biological Sciences); Warren Howie: BSc (Statistics & Geography); Rebecca Abey: BSc (Statistics & Philosophy); Timothy Saunders: BSc (Statistics & Psychology).
CONGRATULATIONS

Congratulations to Mike Steel, Charles Semple and Maarten McKubre-Jordens on their successes in the recent Marsden round. Mike and Charles secured funding over 3 years for their project Genetic Jigsaws with Missing Pieces: mathematical challenges for piecing together evolution from patchy taxon coverage, in the standard round. Maarten was successful with his Fast Start proposal for a 3-year project Non-classical Foundations of Analysis.

— Gunter Steinke

Congratulations to our academic promotions candidates, all of whom were promoted with effect from 1 January 2013: Marco Reale to Associate Professor; Mike Plank to Senior Lecturer above the bar; and Miguel Moyers-Gonzalez to Senior Lecturer.

— Douglas Bridges

Congratulations to Mathematics/Physics Honours student James Bonifacio who has been awarded a Rhodes Scholarship to study for a PhD in Theoretic Physics at Oxford University.

Congratulations to Penelope Goode on obtaining her USAR (Urban Search and Rescue) qualification.

Congratulations to Alan Williams and Connor Robinson-Arnull for their appointments as Summer Research Interns in Statistical and Machine Learning at Adscale Laboratories Ltd, an emerging IT company based in Christchurch (http://www.adscale.co.nz).

— Raaz Sainudiin

Congratulations to Dr Wen Eng Ong, who has completed the changes to her thesis post her viva and deposited the final version in the library. Wen is now taking up her new lecturing position at the University of Science, Penang.

— Rick Beatson & Chris Price

Gloria Teng has been offered a permanent job as a Lecturer in Data Mining at the Faculty of Engineering and Sciences, University Tunku Abdul Rahman, Kuala Lumpur. The university is 10 years old and has around 21,000 students. Gloria plans to visit Christchurch to defend her PhD in January.

— Raaz Sainudiin

Congratulations to Hannes and Sarah Diener on the birth of their daughter Elizabeth, on 10 November.

— Douglas Bridges

STATISTICS OPEN DAY – 2 November 2012

Richard Penny (Statistics NZ) A random sample of Statisticians?

The Statistics Open Day was held on 2 November with about 60 people attending from different Canterbury-based organisations, including Otago Medical School, Statistics NZ, Lincoln University, Plant and Food Research, and private companies. It was good to see so many from other departments at UC attending. There were about 15 postgraduate students from our department and others. The talks were all interesting and quite varied. Jan Evans-Freeman and Jennifer Brown opened the day. Thomas Lumley from Auckland University was the keynote speaker and the day finished with an excellent talk by Frank Lad. Thank you to Patrick for his organisation and to Peter Jaksons, Irene van Woerden, Sarah, Penny and Pauline for their work. Special thanks go to all members of the Stats Group, especially Jennifer, Marco and Carl for their valuable support and assistance. Alasdair Noble was another one of the organisers (and first suggested the day). The event was jointly funded by Plant and Food Research and the College of Engineering.
PAPERS ACCEPTED


PAPERS PUBLISHED


STATISTICAL CONSULTING UNIT

Elena Moltchanova has been getting positive feedback on the statistics workshops she’s been running on campus. The following feedback came from a postgrad student in another department:

Just wanted to thank you for today’s seminar! It was useful and interesting, and I’ll be recommending it in our department. A particular strength of the series, I think, is the examples you use; they’re uniformly excellent and really help to clarify the main points. The other benefit of the examples is how they illuminate the process overall – it’s much clearer when we’ve been taken through from problem to analysis a few times, as we were today. And the detail of terminology and specific wording was great also. I now have no excuses left for shoddy analysis!

Elena’s series of 4 seminars for PhD students has now been completed with lively audience participation and very positive feedback. Also, as part of the Statistical Consulting Unit’s GradFest 2012 activities, she gave a seminar titled Some Thoughts on Statistical Design, Analysis and Reporting, which was also well-attended.

The next Consulting Unit seminar, organised primarily by the Department of Psychology, took place on 11 December. This was on the topic of mixed effects modelling applied to hierarchical and repeated measures data.

CONFERENCES AND VISITS

Charles Semple reports from the UK that this is his second extended visit to the University of Oxford and he now has a much greater appreciation of how the place works. He says that the university and, more particularly, the colleges, are very supportive of the students. The large number of students at all levels and the relatively small size of the city make for a vibrant community. Currently, he’s involved with a 4th year combinatorics course, which even at this level has weekly tutorials of size 10, but, then again, the class does have over 60 students. He says that the weekly combinatorial seminars provide a great focal point for the discrete mathematics academics and their DPhil students.

Maarten McKubre-Jordens is to present recent work on non-classical analysis at the Joint Mathematics Meeting in San Diego and give a research seminar at Stanford University titled Solving Dirichlet’s Problem Constructively, in January 2013.
Conferences & Visits (contin.)

John Hannah recently spent a week in Israel at the 16th Haifa Matrix Theory conference. This year, for the first time, the conference had a session devoted to the teaching of Linear Algebra. John was one of two New Zealanders who were invited to speak at that session, the other being Sepideh Stewart from Auckland. John treated them to an account of his use of MATLAB experiments and report writing, which generated interesting discussions and several requests for more details. The most intriguing talks, for John, were about the use of a generalized singular valve decomposition both to analyse phylogenetic trees and to search cancer patient databases for clues to a possible cure. And a possible sign for the future was the number of participants, including Jeff Hunter from Massey and AUT, who had officially retired but were pursuing flourishing research careers.

Raaz Sainudiin gave a talk entitled *Mapped Regular Pavings* at Intervals Pavings and Applications (IPA2012), Department on Mathematics, Uppsala University, Sweden, 15 October 2012. He also gave a talk entitled *Population pedigree process of the Chatham Island Black Robin; a case of human-assisted spread of a maladaptive behaviour in a critically endangered bird* at the Centre for Mathematics and its Applications, Ecole Polytechnique, Palaiseau, France, 24 October 2012.

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**PhD RESEARCH VISIT TO JAPAN**

PhD student Rosalie Hosking has been in Japan for most of the past 3 months on a research visit and has been photographing Japanese mathematical tablets hung in Shinto shrines. Photo left: Rosalie at the Isaniwa Shrine with Mr Asayama, Dr Hirata and Mr Kawamura of the Ehime Sangaku Society. They are holding a new replica of Kousaka Kinjirou’s 1873 mathematical tablet. Photo right: an original mathematical tablet dedicated to the Mishima Shrine by Matsuoka Tasaburou in 1880. Rosalie reports that Matsuoka created the tablet as a prayer to the gods that his son would develop an interest in Mathematics. Local history has it that his son later did become a talented mathematician.

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**INTERVALS PAVINGS & APPLICATIONS WORKSHOP (IPA2012)**

IPA2012 was successfully organized by Luc Jaulin (ENSTA Brest), Raaz Sainudiin (UC) and Warwick Tucker (Uppsala, Sweden) in Uppsala from 15-17 October 2012. The workshop brought together 15 invited speakers from France, Germany, Poland, Sweden and the USA and facilitated interactions between Mathematicians, Statisticians and Engineers. Topics ranged from existence proofs of PDEs by a harmonic analyst to fuel-optimized rendez-vous in space by an engineer from the European Space Agency. As a concrete example, swarms of autonomous marine robots are expected to police and monitor oceanic traffic in the near future. In order to guarantee that such autonomous sailboats and submarines (marine robots) stay on a prescribed course, one needs an integrative approach involving contractor programming of integrals over set-valued vector fields with control and sensor spaces using the principles of bounded-error decision theory.

- Raaz Sainudiin
Fluids in New Zealand (FiNZ) 2013

Fluids in New Zealand is a new research workshop and forum for discussing fluid dynamics in the broadest sense. FiNZ 2013 will take place at the University of Canterbury (Erskine Building) from Wednesday 30 January to Friday 1 February 2013.

The format will have both expository plenary talks and shorter workshop-style talk sessions, with time and space allocated for break-out discussion. The idea is to mix experienced researchers with research students, structured talks with free discussion, and experimentalists with theorists and numericists. The plenary speakers will be Prof. Leslie Yeo (RMIT), Prof. Jim Denier (Auckland), Dr Teo Burghelea (Laboratoire de Thermocinetique, CNRS, University of Nantes), and Dr Stephane Popinet (NIWA). No peer-reviewed abstracts or papers will be published, but it is the Organizing Committee’s hope that FiNZ 2013 will enhance attendees’ research in and passion for fluid dynamics.

You are cordially invited to register your attendance at the email address below. Please indicate if you wish to give a contributed talk. The organizing committee is Dr Phil Wilson (Maths & Stats), Dr Miguel Moyers Gonzalez (Maths & Stats), and Dr Mathieu Sellier (Mechanical Engineering).

Contact: Phil Wilson finz2013@math.canterbury.ac.nz

NZMASP CONFERENCE 2012

The annual New Zealand Mathematics and Statistics Postgraduate (NZMASP) conference was held from 12-16 November. Honours, Masters and PhD students from all over New Zealand were encouraged to attend and present a talk. This year’s conference was hosted by the University of Auckland at the Shakespeare Lodge YMCA Camp on the Whangaparaoa Peninsula; a scenic venue just 5 minutes’ walk from the beach. A major goal of the conference is to facilitate the exchange of ideas among NZ postgraduates in Mathematics and Statistics. The student-organised conference is a supportive, non-threatening, academic environment for postgraduate students to network with other students, as well as the three invited academics, and to present their research. In between the busy schedule (with talks beginning at 8:45am and ending at 5:30pm on most days), there was still some time to view a partial solar eclipse, attend a conference dinner, play touch rugby, soccer and frisbee, go for the occasional swim, and play the famous bean game (also known as Bohnanza).

Forty-three postgraduate students, of whom 7 were from our department, attended the conference and presented a 20 minute talk in one of three areas: Pure Mathematics, Applied Mathematics, or Statistics. The invited speakers were Dimitri Leemans (Department of Mathematics, Auckland University), Shawn Means (Auckland Bioengineering Institute), and Steffen Klaere (Department of Statistics, Auckland University). The conference was a valuable experience for all involved, whether presenting our work, learning about others’ research, or chairing a session for the first time. There was a prize for the best talk in each of the three areas, as well as a “People’s Choice” award. Canterbury took home the prize for the best Pure Mathematics talk (Nick Brettell) and best Statistics talk (Peter Jaksons).

Thanks go to Edoardo Persichetti and Roberto Panai (from Auckland University) for their organisation of the event, and the department’s support that enabled us to attend. This is the 7th year the conference has run, since its inception in 2006. Next year, hosting duties for the conference will return to Canterbury University. Current (and imminent) postgraduate students: look out for next year’s event!

- Irene van Woerden
WELCOME TO OUR DEPARTMENT VISITORS

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<td>Helmholtz Zentrum, Munich</td>
<td>R Beatson</td>
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<td>Tim Candy</td>
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NEWS FROM THE LIBRARY

* The Central Library has closed for the summer (Library News) [http://library.canterbury.ac.nz/blogs/libnews.php?itemid=15140]
* Do you want to recommend books to the Library? – send the details to the Library Liaison Officer for Mathematics and Statistics, Dr Phil Wilson [http://bit.ly/NKgZ2J]

From the Web
1. Model sheds light on chemistry that sparked origin of life (ScienceDaily) [http://bit.ly/ThfqKm]
2. When people worry about math, the brain feels the pain (ScienceDaily) [http://bit.ly/V39YuQ]
4. The aftermath of calculator use in college classrooms (ScienceDaily) [http://bit.ly/UQy1is]
6. CourseSmart Analytics is a bad idea (Inside Higher Ed) [http://bit.ly/UmH9Lu]
7. The Stanford education experiment could change higher learning forever (Wired) [http://bit.ly/Y6zJ4U]
8. University of the future: A thousand year old industry on the cusp of profound change (Ernst & Young, Australia; PDF) [http://bit.ly/5qQJ2J]
10. The benefits of rejection [manuscripts that are rejected then resubmitted are cited more often] (The Scientist) [http://bit.ly/VC84SH]
17. As libraries go digital, sharing of data is at odds with tradition of privacy (The Chronicle of Higher Education) [http://bit.ly/U9GxGl]

On the lighter side...
* Mathgen (Ars Mathematica blog) [http://bit.ly/UoQJ2Q]
* Artist’s inspiration: How robot soccer led to a mathematician’s mirror that reflects your true face (ScienceDaily) [http://bit.ly/Qb3nBA]
* Animated factorization diagrams [Click “About” on the page for an explanation] [http://bit.ly/QHR6WM]
* Math (xkcd) [http://bit.ly/QmC875]
* Frequentists vs. Bayesians (xkcd) [http://bit.ly/10lx5SQ]