

Newsletter

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COMBINED MATHEMATICS-PHILOSOPHY KAIKOURA RETREAT



A joint Mathematics-Philosophy retreat for UC and visiting staff and students, for a weekend of academic discussion, fellowship and fresh air, took place at the end of May at the University's Kaikoura Field Station. The trip was packed, and the scholarly fare included ten talks on various topics including constructive mathematics, history and philosophy of mathematics, mathematics education, experimental statistics, imaging and probability. One talk included some very hard sums consisting of tequila, shot glasses and dice - all in the name of research, of course!

- Clemency Montelle

(More photos inside)

CONGRATULATIONS

Jennifer Brown (Lead PI) and Blair Robertson have been awarded a 3-year grant worth \$1m to develop environmental monitoring in Qatar. The grant, which was internationally competitive, is with Trent MacDonald from WEST Inc, Wyoming and colleagues at Qatar University.

Raaz Sainudiin is an investigator on the Black Robin project with Melanie Massaro, Anthony Poole and Marie Hale from the School of Biological Sciences entitled: 'A genetics toolkit for the successful management of one of New Zealand's most critically endangered birds', which has just been awarded a \$24,000 grant from the Brian Mason Foundation to collect and analyze genetic and pedigree data of the Black Robin population in the Chathams that is recovering from the world's most severe bottleneck of one breeding pair.

The following were successful in the May round of College Strategic Research Fund grants:

- Rua Murray: \$3,000 to travel to the Banff International Research Station (BIRS) in Alberta, Canada, to participate in a focussed research group 11frg168, 23 – 30 October 2011: <http://www.birs.ca/events/2011/focussed-research-groups/11frg168/> New Methods for analysing metastable structures in closed, open or non-autonomous dynamical systems.
- Miguel Moyers-Gonzalez: to assist in the preparation of his Marsden.
- Jennifer Brown: to support a visit by Marcia Barbosa from Portugal to continue their work on species distribution modelling.

Congratulations to three Cashmere Primary School Year 7 and 8 children who came first equal in the NZ section of the International Statistical Literacy Poster competition. Over Summer the children collected data on the summertime weather and then, in the post-earthquake days, managed to analyze and write-up the poster in time for the competition deadline in early April. Jennifer Brown provided guidance for the children and thanks also go to Paul Brouwers for his help in editing the final poster layout. The students were competing with Year 9 and 10 children, so it is an amazing achievement for them. – Jennifer Brown

CONFERENCES & VISITS

Richard Brown: to give a talk entitled *Using reduced-order models and waveform relaxation to solve cerebral blood flow auto-regulation DEs on a large binary tree network*, at the 24th Biennial Conference on Numerical Analysis, University of Strathclyde, 28 June – 1 July 2011. Richard will also be making research visits to York and Oxford.

Saba Saharan: to give a talk entitled *Analysis of Traffic Accidents Severity: an Application of Genetics Algorithms-based Clustering* at the First National Postgraduate Research Colloquium 2011, University of Otago, 4 July 2011.

Joe Zhu: to present a poster entitled *Probabilistic Modelling of Gene Trees Given Species Networks* at the NZSA Conference in Auckland, 28-31 August 2011.

PAPERS SUBMITTED

Massaro, M., Sainudiin, R., Merton, D., Briskiel, J., Poole, A., & Hale, M.: *Human-assisted Spread of a Maladaptive Behaviour in a Critically Endangered Bird*. (This paper is about the New Zealand Black Robin and one of the co-authors is the famous NZ conservation biologist who passed away recently.)

PAPERS ACCEPTED

Wall, D.J.N., Olsson, P. & van Houten, E.E.W.: *On an Inverse Problem from Magnetic Resonance Elastic Imaging* Ms. # 083208R (SIAM Journal on Applied Mathematics)

PAPERS PUBLISHED

Montelle, C. (book): *Chasing Shadows: Mathematics, Astronomy and the Early History of Eclipse Reckoning* (Book published by John Hopkins University Press 2011, 408pp)

Montelle, C & Keller, A. (report): *Workshop on the History of Numerical Tables* (Indian Journal for the History of Science, 46.1, 2011, 181-184)

Montelle, C. (chapter in book): *A Symbolic History of the Derivative* in *Mathematical Time Capsules: Historical Modules for the Mathematics Classroom* (Mathematical Association of America Notes, ed. A. Shell-Gellasch and R. Jardine, 151-158.

Montelle, C. (chapter in book): *Roots, Rocks and Newton-Raphson: Algorithms for Approximating the Square Root of 2 3,000 Years Apart* in *Mathematical Time Capsules: Historical Modules for the Mathematics Classroom* (Mathematical Association of America Notes, ed. A. Shell-Gellasch and R. Jardine, 229-240.)

Montelle, C. (chapter in book): *Bernoulli's Account of the Divergent Harmonic Series in Latin* in *Mathematical Time Capsules: Historical Modules for the Mathematics Classroom* (Mathematical Association of America Notes, ed. A. Shell-Gellasch and R. Jardine (in press, expected mid-2011, 261-268)

Olsson, P. & Wall, D.J.N. (2011): *Inverse Problems Volume 27 Number 4* (Inverse Problems 27 doi: 10.1088/0266-5611/27/4/045010)

Smith, F.T. & Wilson, P.L.: *Fluid-body Interactions: Clashing, Skimming, Bouncing* (Phil. Trans. R. Soc. A 2011 369, 3007-3024 doi: 10.1098/rsta.2011.0092)

KAIKOURA RETREAT (continued)

