

UC OPEN DAY – SATURDAY 1 OCTOBER



UC Open Day

Thanks to Raaz Sainudiin, Miguel Moyers-Gonzalez and Phil Wilson for organizing a great display at the Open Day on Saturday 1 October, and a huge thanks to James Williams and Thomas Heyang Li for the boundless enthusiasm with which they engaged all generations of curious visitors.

I didn't see many folk likely to be students next year, but there were dozens who'll be here in 10 years' time, and apparently they have already been taught about non-Newtonian fluids in preschool!

- John Hannah

WELCOME TO OUR DEPARTMENT VISITORS

Visitor	Organization	Host	From	To	Room	Extn
Kim Plofker	Union College, USA	C Montelle	18.10.11	1.12.11	Ruth. 309	6267
Agathe Keller	University of Paris	C Montelle	24.10.11	4.11.11	Ruth. 309	6267
Marcia Barbosa	Evora University, Portugal	J Brown	25.10.11	16.12.11	Ruth.309	6267
Ramasubramanian Sharma	Indian Institute of Technology	C Montelle	2.11.11	14.11.11	Ruth. 309	6267

SCHOLARSHIP CALCULUS SUPPORT

On Saturday 29 October, we held the last of this year's Scholarship Calculus support activities. About 70 Year 13 students came along to a workshop, with talks given by Graham Gracie (Riccarton High School), Tim Schumacher and John Wilkes (both from Burnside High School), exam tips offered by Simon Todd (one of our top 3rd year students) and one-on-one help offered by John, Simon and me.

Scholarship is the only part of NCEA that officially encourages students to link what is otherwise very compartmentalised knowledge. In the rest of NCEA, single topics (like 'trigonometry' or 'differentiation', and so on) are tested by stand-alone assessments dealing ONLY with that topic. So it was good see the 'make connections' message being passed on to so many keen and able students.

A bucket-load of thanks to Graham, Tim, John and Simon for their excellent presentations, and to Lisa Kulczycki for all the organization that went into the day. Thanks also to Simon for running three fortnightly tutorial sessions earlier in the term, and to James Williams and Thomas Heyang Li for their help in these tutorials. This was a new feature of our Scholarship support this year and attracted about 20 students per session. With help from the CMA (the local maths association), we hope this support system will grow further next year.

- John Hannah



SUMMER INTERNSHIP – STEVE MANION

Over the Summer, CAMS PhD student Steve Manion will be completing an internship at Pingar, a New Zealand-based company building technologies based on semantic text analysis to help companies organise their unstructured data. Steve will be working on Pingar's API for analysing Japanese documents to enable Pingar's roll-out into the Japanese market.

He will also participate in a joint research project between Pingar and the University of Waikato, sponsored by the Ministry of Science and Innovation. He will be collaborating with Dr David Milne, Dr Anna Huang and Dr Jeen Broekstra. The project is focused on automatically creating taxonomies from document collections. Steve's current PhD project at Canterbury University also involves extracting meaningful networks from unstructured data, therefore the experience gained from working on this project will equip him with many skills he can bring back to his own project. The University of Waikato is well known around the world in the field of data mining and machine learning, in particular notable projects are WEKA, Maui and Koru. Pingar has a strong research connection with that university.

Overall, this is a great opportunity for Steve to be able to collaborate with many leading scientists in his field and learn many new skills.

-Raaz Sainudiin

PAPERS SUBMITTED

Asgari, H., Chen, X.Q. and Sainudiin, R.: *Considerations in Modelling and Control of Gas Turbines – a Review* (3rd Conference on Rotating Equipment in Oil and Power Industries, Tehran, Iran, 22-23 November 2011).

Moradi, M., Brown, J.A. and Hodge, M.C.: *Minimal Sufficiency in Rare Populations* (submitted to Journal of Statistical Theory and Practice)

Teng, G., Harlow, J., Lee, D., and Sainudiin, R.: *Posterior Expectation of Regularly Paved Random Histograms*

Williams, M., D'Amico, F., Page, C., Bertrand, A., Nemoz, M. and Brown, J.: *Rare Species Modelling at the Edge of Their Distribution: a case for the vulnerable endemic Pyrenean desman in France* (submitted to Scientific World Journal).

PAPERS ACCEPTED

Asgari, H., Chen, X.Q. and Sainudiin, R.: *Application of Artificial Neural Networks to Rotating Equipment* (3rd Conference of Rotating Equipment in Oil and Power Industries, Tehran, Iran, 22-23 November 2011).

Catton, P. and Montelle, C.: *To Diagram, to Demonstrate: to Do, to See and to Judge in Greek Geometry* (Philosophia Mathematica, February 2012, 44pp.)

Ramanathan, A.K., Nowacki, J., Hoffman, H., McLaughlin, K., Kelly, P. and Degnan, J.H.: *Ode to Cimino* (J. Vascular Access DOI: 10.5301/jva.5000023)

Schillewaert, J. and Steinke, G.: *A Flat Laguerre Plane of Kleinwillinghofer Type* (V Journal of the Australian Mathematical Society).

PAPERS PUBLISHED

(Book Published) Bridges, D.S. & Vita, L.S.: *Apartness and Uniformity; a Constructive Development* (in the C series *Theory and Applications of Computability*, Springer Verlag.)

Allman, E.S., Degnan, J.H., Rhodes, J.A. (2011): *Determining Species Tree Topologies from Clade Probabilities under the Coalescent* (J. Theoretical Biology 289: 96-106)

Bridges, D.S.: *Characterising Weak-operator Continuous Linear Functional on $B(H)$ Constructively* (Documenta Math. 16, 597–617, 2011).

DeGiorgio, M, Degnan, J.H. and Rosenberg, N.A. (2011): *Coalescence-time Distributions in a Serial Founder Model of Human Evolutionary History* (Genetics 189, 579-593)

Luna, L. and Taylor, W.: *Cantor's Proof in the Full Definable Universe* (Australasian Journal of Logic, Vol. 9, 2010 (Electronic resources Nov 3, 2010).

CONFERENCES AND VISITS

James Degnan: to give a talk titled *Modeling Hybridisation: Gene Trees in Species Networks* at Phylomania, Tasmania, 10-11 November, and to attend NZMASP 2011 (NZ Mathematics and Statistics Postgraduate Conference) in Wellington, 21 – 24 November.

Peter Jaksons: to give a talk entitled *Ecological Sampling: Random, More Random, Totally Random* at NZMASP 2011 in Wellington, 21-24 November.

Maarten McKubre-Jordens: made a research visit to Zach Weber at the University of Melbourne to work on the ARC-funded project *Paraconsistent Foundations of Mathematics*. While there he gave a talk entitled *A Proof Technique Reminiscent of Brouwer's Bar Induction*.

Agate Ponder-Sutton: to attend the NZMASP 2011 in Wellington, 21-24 November.

Marco Reale: to attend the International Conference on Modelling and Simulation (MODSIM 11) in Perth, 12-16 December and CFE11 (Computational and Financial Econometrics) at the University of London, 17-19 December.

Gunter Steinke: to give a talk entitled *Homotheties in Minkowski Planes* at the 35th Australasian Conference on Combinatorial Mathematics and Combinatorial Computing at Monash University Melbourne, 5-9 December and to attend SODO (Symmetries of Discrete Objects) 2012 Conference in Queenstown, 13-17 February.

Sha (Joe) Zhu: to give a talk entitled *Clades and Clans Probability in Yule Trees* at Phylomania 2011 The UTas Theoretical Phylogenetics Meeting, University of Tasmania, 10-11 November.



Mathematics Photojournalism Competition

Clemency Montelle and Alex James organized a Mathematics photojournalism competition for their MATH203 students recently, to prove to their students that Mathematics really is out there in the world.

There were around 30 entries ranging from the clever and the funny to the beautiful and the artistic.

A rowdy unofficial prize ceremony awarded many prizes and selected images will be used in the Department Handbook.

- Clemency Montelle