

# Newsletter

## Mathematics & Statistics

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### This Newsletter:

- Thesis Submitted
- Congratulations
- Papers Published
- In Press
- Papers Submitted
- Papers Accepted For Publications
- Conference Papers
- Journals in Room 616
- Department Research Funds
- It's A Boy - Star Richens
- Other
- Sarah Vincent with NO HAIR!!
- Department Visitors

*Some people spread joy wherever they go  
Others, whenever they go.*

*Oscar Wilde*

*By swallowing evil words unsaid,  
no man has ever harmed his stomach.*

*Sir Winston Churchill*

### THESIS SUBMITTED



Carla Meurk has submitted her MSc thesis on graphical modelling and causality. Carla won a prize for her talk at the NZSA conference in Dunedin in July. Congratulations.

*Jennifer Brown*

### CONGRATULATIONS

Mike Plank (with Rick Beatson and Alex James) has just been awarded a teaching and learning development grant for a summer studentship for developing a web-based automated assessment system. Hopefully Daniel Lond will be taking up the studentship in October.

### PAPER PUBLISHED

M. Steel. Phylogenetic diversity and the greedy algorithm. *Systematic Biology* 54(4): 527--529, 2005.

### IN PRESS

P. Lockhart and M. Steel, A tale of two processes. *Systematic Biology*.

M. Baroni, C. Semple, and M. Steel, Hybrids in real time. *Systematic Biology*.

C. Semple, and M. Steel, Unicyclic networks: compatibility and enumeration. Submitted to *IEEE/ACM Transactions on Computational Biology and Bioinformatics*.

## PAPERS SUBMITTED

M. Steel and L. Szekely. Teasing apart two trees. Submitted to *Combinatorics, Probability and Computing*.

J.Gill, S. Linusson, V. Moulton, and M. Steel. A regular decomposition of the edge-product space of phylogenetic trees. Submitted to *Advances in Applied Mathematics*.

A. Dress and M. Steel. Phylogenetic diversity over an abelian group Submitted to *Annals of Combinatorics*.

Philip Butler, Adam Gillard, Niels Gresnigt, William Joyce, Ben Martin and Peter Renaud, "Physics with a real Clifford algebra". Adam and Niels are maths/physics Honours students; this paper has come out of their Honours project work, together with work they did for their Summer Student projects.

M. Steel, Tools to construct and study big trees: A mathematical perspective. Book chapter for: *Towards the tree of life: taxonomy and systematics of large and species rich taxa* (eds. Trevor Hodkinson, John Parnell and Steve Waldren).

T. Thierer, D. Bryant and M. Steel, Counting the number of ancestral reconstructions in a fixed phylogeny satisfying a given number of transitions of each type, Submitted to *Annals of Combinatorics*.

S. Grunewald, M. Shel. Swenson and M. Steel, Closure operations in phylogenetics.

Mike Steel and Jotun Hein, Reconstructing pedigrees: a combinatorial perspective, submitted to *Journal of Theoretical Biology*

Mike Steel and Laszlo Szkeley, On the variational distance of two trees, submitted to *Annals of Applied Probability*.

## ACCEPTED FOR PUBLICATION

R.K. Beatson, H.-Q. Bui and J. Levesley. "Embeddings of Beppo-Levi spaces in Holder Zygmund spaces, and a new method for radial basis function interpolation error estimates" in *Journal of Approximation Theory*.

Hudson I, Fukuda, K & Dalrymple M. 2005. "Climate-pollution impacts on SIDS." In: *Proc MODSIM05 - 16th Biennial Congress on Modelling and Simulation*. Melbourne, Dec 12-15, 2005:pp 00-7 (in press).

Keatley, M. & Hudson I. 2005. "SSA: An additional tool for examining phenological time series?" In: *Proceedings 17th International Congress of Biometeorology*, 5-9 Sept 2005, Garmisch-Partenkirchen, Bavaria, Germany: pp 00-4 (in press).

Keatley, M. & Hudson I. 2005. "Change in flowering dates of Australian plants: 1983-2004". In: *Proceedings Greenhouse 2005 Conference CSIRO*: 13-17 Nov 2005, Melbourne, Action on Climate Change.

## CONFERENCE PAPERS

Hudson I, Fukuda, K & Dalrymple M L. 2005. "Climate-pollution impacts on SIDS: via SSA." In: *Proc MODSIM05 - 16th Biennial Congress on Modelling and Simulation*. Dec 12-15, 2005: Melbourne, pp 00-7.

Keatley, M. & Hudson I. 2005. "SSA: An additional tool for examining phenological time series" In: *Proc. 17th Intl Congress of Biometeorology*, 5-9 Sept 2005, Garmisch-Partenkirchen, Bavaria, Germany: pp 00-4.

Gong, Z., Hudson, I. & Graham, P. 2005. "A Bayesian Causal Accelerated Failure Time (BC-AFT) Model". *New Zealand Statistics Association (NZSA) Conference*, 4-6 July, Dunedin, NZ.

Fukuda, K. & Hudson, I.L 2005 "Investigations of short-term weather influences on NO, NO<sub>2</sub>, CO, SO<sub>2</sub>, and PM<sub>10</sub> levels in Christchurch, NZ" *International Conference on Research Highlights and Vanguard Technology on Environmental Engineering*, Kanazawa University, Sept., 12 - 15, 2005, Ishikawa, Japan.

Keatley, MR & Hudson I. 2005. Change in flowering dates of Australian plants: 1983-2004. In: Proc Greenhouse 2005 Conference, CSIRO: 13-17 Nov 2005, Melbourne, Action on Climate Change.

Carla Meurk (2005) "Modeling of Time Series with Applications to Environmental Data." New Zealand Statistics Association (NZSA) Conference, 4-6 July, Dunedin, NZ.

### JOURNALS IN ROOM 616

Please note that the Biomath Centre currently receives subscriptions (mostly complimentary) to the following journals, which are shelved in room 616. Feel free to browse these if you wish, but please don't remove them (unless for photocopying and immediate return).

- Nature
- Public Library of Science Biology
- Trends in Ecology and Evolution
- Trends in Cognitive Science
- Systematic Biology
- Journal of Computational Biology

### DEPARTMENT RESEARCH FUNDS

Congratulations to the following who have been awarded grants towards conference and research expenses:

- ♦ Marco Reale is presented a poster on "*Detecting Multiple Structural Breaks in the mean with atheoretical regression trees*" at the International Workshop on Statistical Modelling, Sydney, 10-15 July 2005.
- ♦ Douglas Bridges: 2<sup>nd</sup> International Conference on Computability and Complexity in Analysis, Kyoto, Japan, 25-29 August 2005. Presenting a paper "*An extension theorem for ultraweakly continuous linear functionals on  $B(X,Y)$* ".
- ♦ John Hannah is presenting "*Towards student instrumentation of computer-based algebra systems in university courses*" at the Kingfisher Delta 2005, World Heritage Fraser Island, 22-26 November 2005.
- ♦ Bill Baritomba to attend:
  - NZAMT Conference, Christchurch, 27-30 September 2005.
  - Kingfisher Delta 2005, Fraser Island, 22-26 November 2005.
  - Math Association of Victoria Conference, La Trobe University, 1-2 December 2005.
- Neil Watson will be attending the 2005 NZ Mathematics Colloquium on the 5-6 December and will present "*Another way to say subsolution*".

### IT'S A BOY – Star Richens



Congratulations to Andrew, Kathleen and River Richens on the birth, over the weekend, of their son and brother Star.

### OTHER

I visited the University of Auckland from Monday June 27 to Friday July 1. During that time I attended the NZIMA Workshop "Geometry: Interactions with Algebra and Analysis" and gave a talk entitled "Geometric invariant theory and subgroups of reductive algebraic groups".

Ben Martin

## SARAH VINCENT WITH NO HAIR!!



# Mandy & Sarah Shave the Day!

...raising money for the fight against Cancer



Recently I lost a close friend of mine, Tracey Durie, to cancer.

The Cancer Society receives no direct government funding and they rely heavily on the generosity of the community to raise funds so that they can continue to assist people living in our community with cancer.

With the permission and full support of the Cancer Society, I, together with a friend, have decided to raise money for these Cancer Services and Programmes, in memory of Tracey.

We will endeavour to raise \$10, 000 and in doing so will shave our heads at the Canterbury Draught New Zealand Cup Day – Riccarton Racecourse – on the 12<sup>th</sup> November 2005.

We ask that people who wish to support our cause do so by pledging or donating some money. There is a pledge form in the Maths and Stats office or you can contact me directly for further information on extn 7698 or email sarah.vincent@canterbury.ac.nz. I would also be happy to send you a pledge form if you are interested in being more actively involved. All pledges or donations over \$5 are tax deductible.

I look forward to your support – and remember every little bit helps.

Regards  
Sarah Vincent.

A Fundraising event  
1970 - 2005



...in memory of Tracey Durie



### DEPARTMENT VISITORS

Current Visitors	Name of Organization	From	To	Room	Extn
Dr John Holt	University of Massey	15 March 05	31 March 06	502	7663
Visitors due to arrive	Name of Organization	From	To	Room	Extn
Prof. Dominic Welsh	University of Oxford	1 Sept 2005	1 Dec 2005	620	7431
Ms. Tanja Gernhard	University of Munich, Germany	24 Sept 2005	24 Dec 2005	616	8876
Dr Granville Tunnicliffe-Wilson	Lancaster University, U.K.	25 Sept 2005	15 Nov 2005	710	7431
Dr Jon Pitchford	University of York, York, U.K.	15 Oct 2005	15 Jan 2006	607	8875
Dr David Borchers	University of St. Andrews	23 Jan-06	11 Aug-06		
Prof. Domenica Piccolo	University of Napoli Federico II	7 Feb 2006	6 May 2006		
Prof. Daniel Huson	Tuginben University, Germany	15 Feb 2006	15 Jun 2006		
Prof. Stephen Gardiner	University College-Dublin	01 July 2006	31 Aug 2006		
Prof. Jeremy Levesley	University of Leicester	9 July 2006	14 Sept 2006		