Newsletter
Mathematics & Statistics

UC
UNIVERSITY OF
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Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

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CHANGING OF THE GUARD

Professor David Wall, who steps down this month as Head of Department after 6 years, looks back on his time at the helm:

This will be my last HoD column. Although my term is not quite up, I shall be going on Erskine leave on 19 June until the end of August.

I spent six months as Acting HoD at the beginning of 1998. That gave me a taste of what it was like being an HoD, and back then I didn't want it! However, I have enjoyed my two-term stint in the role and at the close of my time I think I have got the Department to a good space.

I was appointed HoD in December 2002 and how the time has flown! I came into the job fully expecting changes, and was happy to represent you through those changes. There were some difficult and stressful times but I have always been grateful for the strong support I have received from the Department. The support and help of my colleagues in the CMT is also appreciated. I have found this group to be a tower of strength. I like being a part of the College of Engineering and I feel that we belong here.

The high points of my time as HoD include employing new staff, seeing staff promoted, and watching graduate students flourish and move out into the world. Then there has been the delight of seeing the Department do well in its various research and teaching endeavours and hearing people, both at Canterbury and outside Canterbury, say nice things about us.

Other high points include getting back most of the engineering mathematics and teaching into the Department. The basic principle that "mathematics should be taught by mathematicians" is again in force at the University. We have an exciting new 15-point programme to teach into the future. We also have a great chance to get the deterministic and non-deterministic (i.e. stochastic) mathematics back together in the engineering mathematics programme. I am pleased to report that the east wing (levels 4 and 5) is nearly back in the Department! And last, but not least, the Department is in a good position financially.

Some of the good things that have helped me to enjoy my job are:
- Working at the University with interesting and intelligent people, which is always stimulating.
- Seeing our postgraduates win the presentation prizes at the mathematics conference held here last year.
- Seeing new graduate students and postdoctoral fellows coming into the Department.
- Reducing the examination marking load.
- Transparency in the Department
- Appointing a Departmental Administration Manager and ICTS Manager
- Learning about "the monkey on my back" and getting it off!
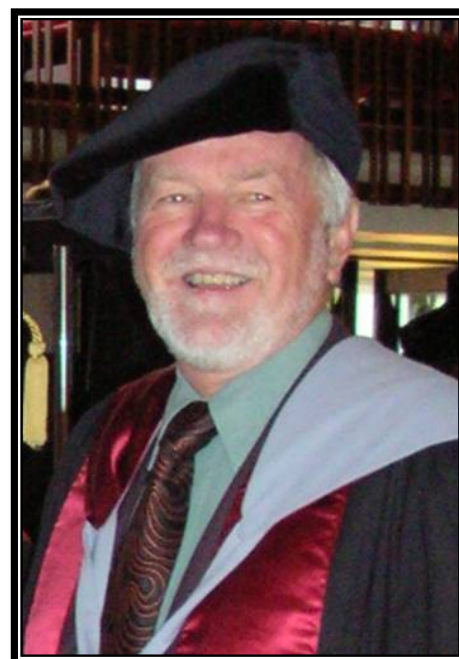
(contin.)

Our last PVC said that Heads of Department have less power than they think. Perhaps that's true, but hey, they just make other people think they have it - don't they!

I am looking forward to being a less prominent member of the Department, up on the 7th floor, and having more time for my teaching and research.

Thanks for allowing me this time as HoD. It has been a privilege to lead this Department. Again, we seem to be moving into a time of change at the University, so it is a delight to pass on leadership to a younger colleague. Jennifer Brown will have new ideas and, I am sure, will lead us on to further successes.

- *David Wall*

HoD FAREWELL

Julie Daly and Bob Broughton respectively making the speeches and presentation

David Wall making his point!   *Distinguished guests!*

NEW STAFF

Welcome to **Miguel Moyers Gonzalez**, who commences his lecturing position with the department in early July. Miguel is a Mexican citizen who comes to us from the University of Durham in the UK, where he was a lecturer in applied mathematics. His research interests include non-Newtonian fluid mechanics; hydrodynamic stability of complex fluids; industrial mathematics; Hemodynamics (modeling and computation); and partial differentiation equations. Miguel will be based in Room 710 (extn 7694).

Miguel Moyers Gonzalez

Welcome also to **Jeroen Schillewaert** who took up a postdoctoral position on 2 June. Gunter Steinke advises that Jeroen obtained his PhD in February this year from the University of Ghent, Belgium. In his thesis he investigated finite geometrical structures and their applications to coding theory and cryptography. His research interests are in incidence geometry. As the department is bursting at the seams, Jeroen is currently based in the mathematics outpost in the Alex Sutherland suite, amongst Engineering HR. When the offices on the east wing of the 4th floor are vacated shortly, Jeroen will move into the department.

WELCOME TO OUR DEPARTMENTAL VISITORS

Visitor	Organization	Host	From	To	Room	Extn
Simon van Gennip	University of York, UK	A James	9/5/09	15/9/09	605	8028
Prof. Tae-Young Yang	Myong Ji University, Sth Korea	M Steel	12/7/09	12/12/09	620	7431
Prof. John Rhodes (Erskine)	University of Alaska Fairbanks	M Steel	15/7/09	1/11/09	607	8875
Prof. Elizabeth Allman	University of Alaska Fairbanks	M Steel	15/7/09	1/11/09	616	8876
Prof. Huaxiong Huang (Erskine)	York University, Toronto	P Wilson	19/7/09	22/8/09	607	8875

ERSKINE FELLOWS

Professor John Rhodes

John Rhodes is Head of the Department of Mathematics & Statistics at the University of Alaska, Fairbanks. In recent years, his primary interest has been the mathematical framework underlying phylogenetics, which is roughly defined as the inference of evolutionary trees from biological data such as genetic sequences. Much of his recent work has focused on using algebraic perspectives to understand probabilistic models of sequence evolution.

During his time at Canterbury, Professor Rhodes will be involved in research, lecturing in mathematical biology and graph theory, and sitting on the examination committee for honours student presentations. He will be hosted by Mike Steel and will be based in Room 607 (extn 8875).

Professor Rhodes will be accompanied by his partner and fellow mathematician, Professor Elizabeth Allman, who will present a seminar during her time with the department. She will be based in Room 616 (extn 8876).

Professor Huaxiong Huang

Huaxiong Huang is Professor of Applied Mathematics at York University in Toronto, Canada. His special fields of expertise are mathematical modelling and scientific computing, financial and industrial mathematics, biomathematics, and fluid mechanics. During his time here, Professor Huang will be lecturing in the Engineering and Science faculties, working with graduate students and presenting seminars.

Professor Huang will be hosted by Phil Wilson and will be based in Room 607 (extn 8875).

PAPERS PUBLISHED

JH Degnan, M de Giorgio, D Bryant, NA Rosenberg: *Properties of consensus methods for interring species trees from gene trees* (Systematic Biology 58: 34-54, 2009.)

JH Degnan & NA Rosenberg: *Gene tree discordance, phylogenetic inference and the multispecies coalescent.* (Trends in Ecology and Evolution 24: 332-340.)

CONGRATULATIONS to **Josh Collins** and **Michael Snook** for completing their Masters degrees. Josh was awarded MSc with First Class Honours for this thesis *Rekernalisation Algorithms in Hybrid Phylogenies.* Michael was awarded MSc with Distinction for his *Tandemly Repeated Sequences.*

- Charles Semple

CONFERENCES & VISITS

Jennifer Brown: to give a talk entitled *Detecting Structural Breaks in Long Memory Time Series* at the Computational and Financial Econometrics Conference in Cyprus, 29 – 31 October 2009.

Clare Bycroft: to give a talk entitled *Parabolas, mechanics, limits: the reception of Archivedian exhaustion techniques in the late 17th century* at the Australian MS Conference, Adelaide, 28 September – 1 October 2009.

Kathy Clark: to present a paper at the Australian MS Conference, Adelaide, 28 September – 1 October 2009

Matthew Hendtlass: to attend the Symposium on Proof Theory and Constructivism, Leeds, 7-15 July 2009

Alex James: to present a poster at the International Conference on Mathematical Biology, University of British Columbia, Vancouver, 25-31 July 2009.

Clemency Montelle: to present a paper and act as special session organiser at the Australian MS Conference, Adelaide, 28 September – 1 October 2009

Samuel Temidayo Osinubi: to attend the INTECOL, the 10th International Congress of Ecology in Brisbane, 16-21 August 2009

Blair Robertson: to attend MODSIM09 (World Congress on Modelling and Simulation) in Cairns, 13-17 July 2009

MATHS WITH THE UNDER-FIVES – FUN WITH QUINCUNX!

Question: What is Mathematics?
Answer: "I dunno" (*a great answer!*)
Action: One child drops two balls in the same way
Observation: The balls fall into 2 different buckets although they look the same and were dropped by the same child.

Question: How are the balls falling through the Quincunx?
Answer: "The balls fall like they are dropped." *(sensitivity to initial conditions or chaos!)*
Action: Dropped 15 balls and pointed out that more balls fall into the middle or central buckets. Children asked to pick a bucket that the ball about to be dropped will fall into. All 3 children chose central buckets (*inituitive conditional probability?*)
The Best Part: Ecstatic laughs, giggles and screams when tens of balls are dropped together!

The data set as a SAGE dictionary type to be used in a 200-level statistics course with:
(key : value) = (x number of right turns : number of balls that made x right turns)

For details see: http://www.math.canterbury.ac.nz/~r.sainudiin/kindymathhour/

- Raaz Sainudiin