

# Newsletter

## Mathematics & Statistics

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COMPLIMENTS OF THE SEASON!



DECEMBER 2005

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### HEAD OF DEPARTMENT'S MESSAGE

This year has been one of many highlights in the areas of both teaching and research. Thank you all for your contributions. I wish you all the best for the festive season and I hope all of you will take a break from work some time over the next couple of months. Next year, with its new challenges and trials, will be upon us soon enough. Merry Christmas and a Happy New Year!

David Wall

### GRADUATION DAY



(l to r) Alethea Rea, Maarten Jordens, and Doreen Bestmann

### PAPERS PUBLISHED

**D S Bridges, H Ishihara, P M Schuster, L S Vita:** *Strong continuity implies uniform sequential continuity.* (Archive for Math. Logic 44, 887-895.)

**R Laugesen & N Watson:** *Another way to say subsolution: the maximum principle and sums of Green functions.* (Mathematica Scandinavica v97, 2005:127-153.)

**H-Q Bui & R S Laugesen:** *Affine systems that span Lebesgue spaces.* (Journal of Fourier Analysis and Applications 11(2005), 533-556.)

**R K Beatson, H-Q Bui & J Levesley:** *Embeddings of Beppo-Levi spaces in Holder-Zygmund spaces, and a new method for radial basis function error estimates.* (J Approximation Theory 137 (2005) 166-178.)



## CONGRATULATIONS

Congratulations to the following staff who have been successful in this year's academic promotions:

- **Arno Berger** (promoted to Senior Lecturer)
- **Alex James** (promoted to Senior Lecturer)
- **Ben Martin** (promoted to Senior Lecturer)



Congratulations to **Ben Martin** and **Rachel Shelton**, who recently announced their engagement! The proposal took place high above the Canterbury Plains in a hot air balloon, where this photo was taken.

Congratulations also to **Jennifer Brown**, **Alex James** and **David Wall** on their NZIM award for 2006/2007 for a programme in *Modelling invasive species and weed impact*.

Congratulations to the winners of the departmental prizes for 2005:

- Cook Memorial Prize: **Maarten Jordens**
- William Brent Wilson Memorial Prize: **Hui Yao**
- Page Memorial Prize: **Robert Knegjens** and **Kiyoyuki Nakagaki**
- Gordon Petersen Memorial Prize: **Mahana Clutha**
- Peter Bryant Memorial Prize (200 level): **Timothy Candy** and **Matthew Hendtlass**
- Peter Bryant Memorial Prize (100 level): **Michael Baker** and **Shaodan Lin**

Congratulations to **Dominic Lee** and **Geoff Chase** who have secured a research contract with SYFT Technologies to assist with research into their diagnostic breath test products.

## CONFERENCES

Irene Hudson & Marco Reale snapped at the IWSM 2005 conference in Sydney.



**Dominic Lee** gave an invited talk on *Analysing Physiological Signals from Preterm Babies* at the Second Workshop on Hidden Markov Models and Complex Systems. This workshop was part of the NZIMA programme on Hidden Markov Models and was held in Wellington. Dominic's talk described the early stages of new research involving **Glynn Russell**, a Neonatal Paediatrician at Christchurch Women's Hospital; **Marco Reale**; **Granville Tunnicliffe-Wilson**, from Lancaster University; and **James Roscoe**, a Summer research student.

**Ben Martin** attended a conference on Lie Theory, Lattices and Dynamics at the University of Newcastle, Australia, from 23-25 November. He gave a talk entitled *Representation Growth and the Congruence Subgroup Property*.

**Arno Berger**, **Alex James**, **David Wall** & **Neil Watson** attended the NZ Mathematics Colloquium at Massey University (Palmerston North) from 5-7 December.



### INTERNATIONAL MATHEMATICAL OLYMPIAD

(Apologies for the delay in this report, which went astray en route to the August newsletter.)

The New Zealand team, and Christchurch members in particular, had excellent results at the International Mathematical Olympiad held in Mexico, in July. Heather Macbeth (Burnside) was awarded a silver medal and Eric Kang (St Bede's) a bronze medal.

This is just the 4<sup>th</sup> silver medal to be won by a New Zealand team member in 18 years of participation. To gain a silver, one has to be in the top 25% of the students present, which is about 130 of a total of around 520. In fact, Heather was placed 68<sup>th</sup> equal, a remarkable achievement.

Bronze medals are also not easy to come by, being awarded to the next 25%. Another member of the team of six, Tom Wang (MacLean's College) also won a bronze medal and two others were given honourable mention for providing a perfect solution to one question. New Zealand was placed 38<sup>th</sup> out of 91 teams.

*Bob Long*

### NZ MATHEMATICAL OLYMPIAD

This Department has contributed to the sponsorship of the NZ Mathematical Olympiad camp being held from 15-21 January 2006. Bob Long is heavily involved with the Canterbury group and his contribution is much appreciated.



#### MESSAGE FROM SARAH

On behalf of Mandy and myself, I'm taking this opportunity to say a huge 'thank you' to everyone who contributed to our Shave the Day fundraising campaign. It was very successful and the total figure raised was \$13,000! Mandy and I were overwhelmed by the support we received throughout the campaign and we know that this contribution to the Cancer Society will make a difference in future. The hair is growing back at a rapid rate and I now have a good 6mm.

(Julie measured it!)

### BOYS ARE EVIL!

**John Hannah** organized a sequence of mathematical enrichment talks for school pupils during the second half of the year. The talks covered topics ranging from complexity in computing to algebra to patterns and pictures. In a talk on proof in mathematics, a well-known 'proof' was presented of the proposition that *Girls are Evil*. The audience was challenged to give a proof in a similar spirit that *Boys are Evil*. Here is the winning entry by Jamie McCloskey and Joan McArdle. (NB: " $\$^{-1}\$$ " is a LaTeX notation for raising the power of -1.)

*Ben Martin*

#### BOYS ARE EVIL

*"Let us start with the singular of the gender, i.e. BOY.*

*We find that the inverse of BOY is YOB, (i.e. from right to left.) So we have:  $BOY\$\^{-1}\$ = YOB.$*

*We all know that in order to behave in a yobbish fashion, the YOB must be alive:  $YOB = LIVE.$*

*Now we can invert both sides as follows:  $YOB\$\^{-1}\$ = LIVE\$\^{-1}\$.$*

*On calculating the inverses of each side, we are left with:  $BOYS = 2\ EVIL.$*

*We feel we ought to be awarded the prize for this because not only have we proven that boys are evil, we have proven they are more evil than evil – in fact, they are too evil!"*



## VISITORS

Welcome to the following recent arrivals:

**Associate Prof. Martin Bridgeman** from Boston College in Massachusetts, is visiting from 28 November to 12 February. His research is on hyperbolic geometry and Kleinian groups (certain groups of isometries of hyperbolic space) and his host is Ben Martin.

**Dr Robin Havea** has returned to work with Douglas Bridges and Simona Vita from 28 November to 23 December. Robin is currently a Lecturer in Mathematics at the University of the South Pacific in Suva.

**Associate Prof. Hakan Lindstrom**, from Uppsala Technical University in Sweden, is here from 14 November to 26 December to work with Marco Reale.

**Dr John Newell**, who arrives on 19 December from the National University of Ireland, Galway, will also be working with Marco for 6 months.

**Prof. Christian Robert** of Ceremade-Université Paris-Dauphine has accepted a Visiting Erskine Fellowship from 8 July-20 August 2006. Dominic Lee will be his host. Christian's areas of interest include Bayesian Analysis, Computational Statistics, Latent Variable Models and Applied Modelling. For further details, visit his webpage at <http://www.ceremade.dauphine.fr/~xian>.

Current Visitors	Name of Organization	From	To	Room	Extn
Dr John Holt	Massey University, NZ	15 March 05	31 March 06	502	7663
Tanja Gernhard	University of Munich, Germany	16 Sep 2005	24 Dec 2005	620	7431
Dr Emily Lane	University of California, USA	1 Oct 2005	31 Mar 2006	502	7663
Dr Jon Pitchford	University of York, England	15 Oct 2005	15 Jan 2006	607	8875
A/Prof Hakan Lindstrom	Uppsala Tech. University, Sweden	14 Nov 2005	26 Dec 2005	605	8028
A/Prof. Martin Bridgeman	Boston College, USA	28 Nov 2005	12 Feb 2006	710	7694
Dr Robin Havea	Univ of the Sth Pacific, Fiji	28 Nov 2005	23 Dec 2005	605	8028
Dr John Newell	University of Ireland, Galway	19 Dec 2005	24 Jun 2006	501	8376
Visitors due to arrive	Name of Organization	From	To	Room	Extn
Ramona Schmid	Tübingen University, Germany	6 Jan 2006	6 Jun 2006	620	7431
Dr David Borchers	University of St Andrews, Scotland	23 Jan 2006	11 Aug 2006	501	8376
Simone Linz	University of Dusseldorf	24 Jan 2006	30 Apr 2006	605	8028
Dr Sean Cleary	City University of New York, USA	1 Feb 2006	30 Mar 2006	607	8875
Dr Katherine St John	City University of New York, USA	1 Feb 2006	30 Mar 2006	607	8875
Prof. Domenica Piccolo	Univ. of Napoli Federico II, Italy	7 Feb 2006	6 May 2006	605	8028
Prof. Daniel Huson	Tübingen University, Germany	15 Feb 2006	15 Jun 2006	616	8876
Prof. David Oxley	Louisiana State University, USA	13 Mar 2006	17 Mar 2006	724	7691
Prof. Geoff Whittle	Victoria University, NZ	13 Mar 2006	17 Mar 2006	724	7691
Prof. Stephen Gardiner	University College Dublin, Ireland	01 Jul 2006	31 Aug 2006	605	8028
Prof. Christian Robert	Université Paris Dauphine, France	8 Jul 2006	20 Aug 2006	607	8875
Prof. Jeremy Levesley	University of Leicester, England	9 Jul 2006	14 Sep 2006	605	8028