

# Newsletter

## Mathematics & Statistics

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### ROY KERR - UPDATE

When Emeritus Professor Roy Kerr visited the United Kingdom recently, professional photographer Max Alexander, a New Zealander now working very successfully in the UK, took this photo of Roy descending into a “black hole” via a staircase at Oxford University.

As part of The Year of Astronomy 2009, Roy has been giving invited talks in Minsk, Belarus; at Cambridge University; and in Fortaleza-Sobral, Brazil, to commemorate the expedition to Sobral in 1919 that confirmed Einstein’s prediction of the bending of light near the sun.

Roy and Margaret Kerr return to New Zealand on 17 October.



Photography by Max Alexander ([www.maxalexander.com](http://www.maxalexander.com))

### EDWARD SAI LOUIE

It is with sadness that we note the recent death on Mt Rolleston of Edward Sai Louie, an Engineering Intermediate student who was studying MATH108-S1, MATH109-S2 and EMTH171-S2 with us this year. We extend our sympathy to his family and friends.

## HoD NEWS

Congratulations to John Hannah, David Fortune, Rua Murray, Bill Taylor and Phillipa Williams for being nominated for the UCSA Lecturer of the Year and to Bill Taylor for winning the UCSA College of Engineering Lecturer of the Year award.

It was good to hear that we are the most organised department at UC in terms of planning for PBRF and preparing evidence portfolios. Thanks to Charles Semple for organising this and other parts of our PBRF plan. The due date for these is 31 October so I suggest you start working on them soon.

This year has been very busy, thanks to the restructuring of our teaching programme to 15 points and the re-organisation of the department management structure. However, the end is in sight, with only exams to write (very quickly!), student pre-exam preparation, and exam marking.

I hope you are all looking forward to a productive Summer research period.

- Jennifer Brown



In my capacity as President of the NZ Statistical Association, I had the privilege of presenting the Campbell Award to Professor David Vere-Jones at the NZSA conference dinner on 2 September. Professor Vere-Jones, Emeritus Professor at Victoria University and one of three founding directors of Statistics Research Associates Limited, has played a very important role in the development of mathematical sciences in New Zealand. He has over 100 scientific publications to his name and was awarded the Royal Society of New Zealand Rutherford Medal in 1999. Professor Vere-Jones is internationally renowned for his work in Statistical Seismology and in the field of education.

- Jennifer Brown

## UC IN THE CITY LECTURE SERIES

### DOUGLAS BRIDGES

As part of the UC in the City 2009 Lecture Series, Douglas Bridges will be delivering a lecture entitled ***Research in Mathematics: Didn't that stop with Newton?*** on Tuesday 13 October at 6pm in the Philip Carter Family Auditorium at the Christchurch Art Gallery.

By looking at some historical examples, Professor Bridges will try to give the audience a feel for the way in which present-day pure mathematicians think and develop their subject. He will conclude with Gödel's remarkable results in mathematical logic, where, by ingenious arguments based on the idea of the ancient *liar paradox*, he revealed that there are inherent restrictions on what we can ever know about mathematics.

The lectures in this series are free public addresses suitable for a broad audience. Staff and students are encouraged to attend and are welcome to bring family and friends to the lecture.

### PAPERS SUBMITTED

**J Schillewaert & K Thas:** *The 2-transitive transplantable isospectral drum* (Journal of Physics A)

### PAPERS ACCEPTED

**J Schillewaert, L Storme & J A Thas:** *Minimal codewords in binary Reed-Muller codes* (Design Codes and Cryptography)

**G F Steinke, H van Maldeghem:** *Generalized quadrangles and projective axes of symmetry* (Beitraege zur Algebra und Geometrie)

**G F Steinke:** *A characterization of certain elation Laguerre planes in terms of Kleinwillinghoefers types* (Results in Mathematics)

### BOOK UNDER REVIEW

**Raazesh Sainudiin:** *Machine Interval Experiments* (LAP Academic Publishers, Köln, Germany)

### CONFERENCES & VISITS

**Douglas Bridges:** research allocation to visit to Professors Richman and Lubarsky, Florida Atlantic University; to lead part of a workshop on constructive mathematics and participate at an AMS meeting in Florida; and to speak at a workshop on Reverse Mathematics at the University of Chicago, 24 October – 10 November 2009.

**Beata Faller:** research allocation to attend the 33<sup>rd</sup> Australasian Conference on Combinatorial Mathematics and Combinatorial Computing, Newcastle, NSW, 7 – 11 December 2009.

**Ben Martin:** visiting collaborators at the University of Bochum, Germany.

**Miguel Moyers-Gonzalez:** department research initiative allocation to attend the Third Workshop of Visco-plastic Fluids: from Theory to Application, Limassol, Cyprus, 1 – 5 November 2009. Talk TBA.

**Carl Scarrott:** department funding to give a talk entitled *A mixture model for extreme value modelling* at the Risk, Rare Events and Extremes Conference in Lausanne, Switzerland, 9 – 13 November 2009.

**Jeroen Schillewaert:** awarded department research initiative allocation to attend a workshop at UCLA and visit UCSD in the USA, 5 – 9 October 2009.

**Raazesh Sainudiin:** partly department funded visit the research group CAPA (Computer Aided Proofs in Analysis), Uppsala Universitet, Matematiska Institutionen, 5 – 23 December 2009.

**Jeroen Schillewaert:** research visit and talk at UCSD (San Diego), 17 September – 4 October, followed by a workshop on Probabilistic Techniques and Applications, UCLA (Los Angeles), 5 – 9 October 2009.

**Charles Semple:** Marsden-funded research visit to the University of East Anglia and the University of Durham, 13 – 29 November 2009.

**Phil Wilson:** research visit to University College London and the Lighthill Institute of Mathematical Science where he will give a talk at LIMS entitled *Lipid Bilayers: an Introduction and Modelling*; research visit to York University, Toronto; and attendance at the 62<sup>nd</sup> Annual Meeting of the Division of Fluid Dynamics of the American Physical Society in Minneapolis where he will give a talk entitled *Development of the Turbulent Flow in a Bent Pipe*, November 2009.

**Marina Zahari:** postgraduate research allocations to give a talk entitled *Identifying unstable preterm infants using measures of oxygen saturation in different behavioural states* at the Biometrics on the Lake conference, Taupo, 29 November – 3 December 2009.

## WELCOME TO OUR DEPARTMENTAL VISITORS

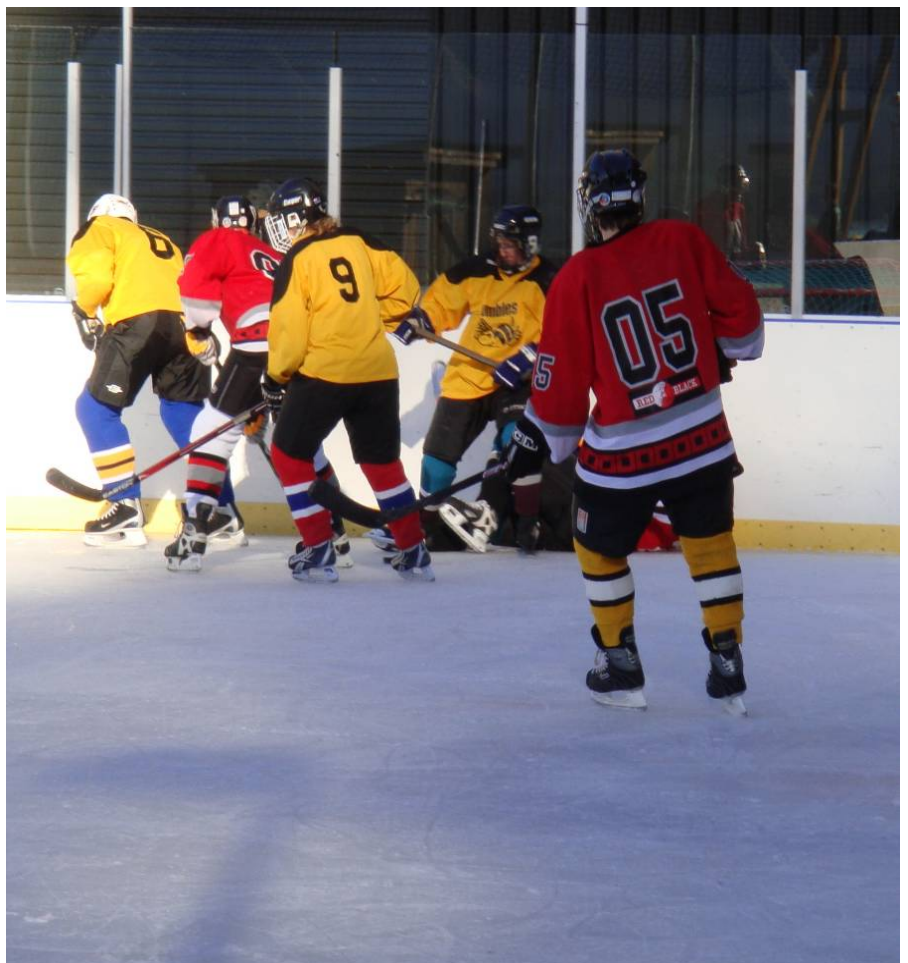
Welcome to **Karen Magnuson-Ford** and **Travis Ingram**, two graduate students from Simon Fraser University who are visiting for 3 months as part of our Marsden Fund "Noah's Ark" project. Karen and Travis will work on projects that combine theoretical ecology (food webs etc) and conservation biology.

- Mike Steel

<u>Visitor</u>	<u>Organization</u>	<u>Host</u>	<u>From</u>	<u>To</u>	<u>Room</u>	<u>Extn</u>
Prof. John Rhodes (Erskine)	University of Alaska Fairbanks	M Steel	15/7/09	1/11/09	607	8875
Tim Candy	University of Edinburgh	Q Bui	25/8/09	30/9/09	605	8028
Assoc. Prof. Gary Froyland	University of NSW	R Murray	11/9/09	16/9/09	604	7678
Ognjen Stancevic	University of NSW	R Murray	11/9/09	2/10/09	604	7678
Dr Bjarki Eldon	Oxford University	J Degnan	14/9/09	25/9/09	605	8028
Prof Eric Lehman	University of Caen	P Renaud	15/9/09	31/10/09	607	8875
Karen Magnuson-Ford	Simon Fraser University	M Steel	23/9/09	8/12/09	616	8876

## HoD ON ICE

Jennifer Brown was ready to take on all-comers at a women's ice hockey tournament at Tekapo earlier this month. And yes, that is Jennifer (right) ruthlessly blocking an opponent by sitting on her!

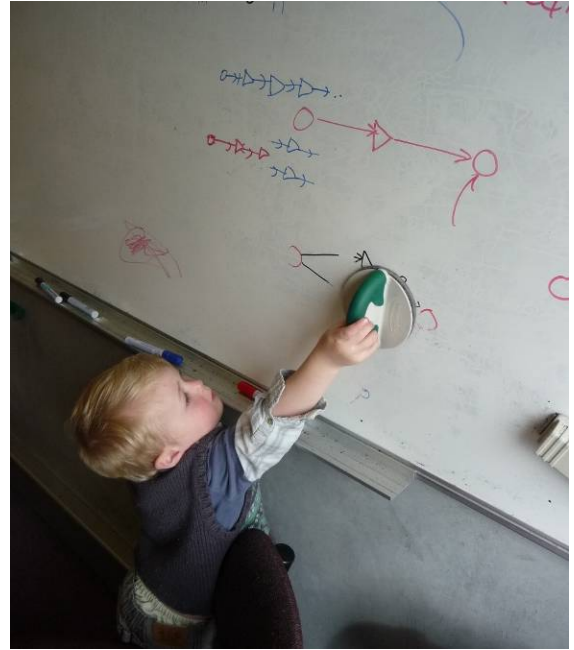


### SEMINAR

Meghan Williams reports from France that she will be giving a seminar entitled *Assessing statistically rare populations with spatially balanced designs: case studies of new invasives in New Zealand and elusive species in the French Pyrenees*, at Tour du Valat, a research centre for the conservation of Mediterranean wetlands, on 6 October.



Daniel Martin - budding mathematician at work!



Daniel correcting one of his father's calculations!

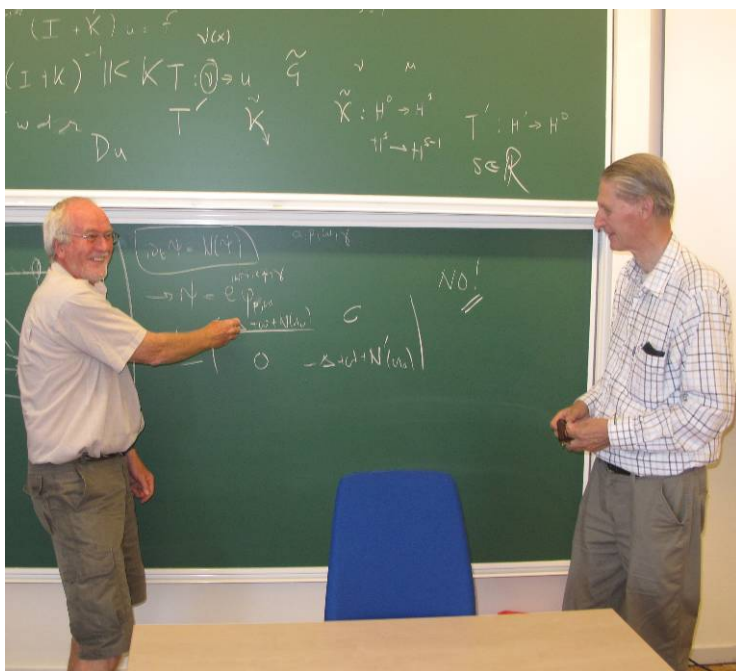
### NEW ZEALAND MATHEMATICS COLLOQUIUM 2009

The New Zealand Mathematics Colloquium for 2009 will be held at Massey University Albany from 8 – 10 December 2009, with a reception on the evening of Monday 7 December. Registration is now open at:

<http://nzmc2009.massey.ac.nz>

- Rick Beatson

### SNAPSHOTS FROM DAVID WALL'S ERSKINE LEAVE



David lecturing at the Kings Technical University, Stockholm