Number 104 December 2008

NEWSLETTER

OF THE

NEW ZEALAND MATHEMATICAL SOCIETY

Contents

PUBLISHER'S NOTICE

This newsletter is the official organ of the New Zealand Mathematical Society Inc. This issue was edited by Alex James with Phil Wilson, compiled by Rachael Tappenden and Pauline Auger and printed at University of Canterbury. The official address of the Society is:

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The homepage of the New Zealand Mathematical Society is:

http://www.math.waikato.ac.nz/NZMS/NZMS.html (Webmaster: stephenj@math.waikato.ac.nz)

The newsletter is available at: http://IFS.massey.ac.nz/mathnews/NZMSnews.shtml

Editorial enquiries and items for submission to this journal should be submitted as text or LaTeX files to nzmseditor@math.canterbury.ac.nz.

ISSN 0110-0025 (Print), ISSN 1178-8879 (Online)

PRESIDENT'S COLUMN

Activities

Peter Cameron toured the New Zealand universities in April as the 2008 Forder Lecturer. His lectures and visits were greatly enjoyed. The LMS indicated concern last year over future funding of the Forder Lectureship, but there have been no further developments.

The inaugural Gloria Olive Student Travel award was made to Selwyn Ng, to allow him to visit Barbara Csima at the University of Waterloo for joint research in algorithmic randomness. Other travel grants were made to Scott Graybill, Nicole Walters, and Jonathan Crook. I would comment that only a tiny fraction of New Zealand PhD students ever apply to us for travel funds and I would remind all supervisors to encourage their students to apply. The same remark applies to our allocation of funds to support students attending the Mathematics in Industry Study Group; these funds have never been fully allocated. There is still time to apply for funding for MISG in February 2009. We also made grants to the Postgrad Conference and to the present Colloquium. After such an outstandingly successful joint meeting last year with the AMS at Victoria, it is very encouraging to see this tradition continuing this year with another joint meeting with the Australian Mathematical Society.

During the year I became concerned about the safety of our investment in a mortgage-backed fund and we have now moved all of our investments to BNZ term deposits. We have a very healthy bank balance and are very interested in any suggestions of new activities.

The wind-down of the CoRE funding of the NZIMA and the successful review of the mathematical sciences in Australia have prompted me to undertake a pilot review for New Zealand, through the MIS committee of the RSNZ. This will look at possible areas of concern and recommend strategies for a full review.

I have brushed up the procedures for applying for a Fellowship of the NZMS, there having been no applications for a few years. Both membership and Fellowship of professional bodies like the NZMS are recognized under the PBRF and I would encourage all our members to seek eligible nominees. It was pleasing to see the success of the informal membership drive the council undertook during the year; again, this requires your support.

NZMS Awards

Our Research Award for 2007 went to Ernie Kalnins of the University of Waikato for his "wide ranging, prolific and significant contributions to mathematics, especially in his research on symmetries of partial differential equations, separable coordinates and superintegrable systems". The inaugural Early Career awards went to Noam Greenberg (Victoria), for his "discovery of new natural definable classes which capture the dynamics of constructions arising from computability theory, his studies of real-valued measures on the continuum and his use of delicate inductive arguments to exhibit links between high compressibility and low computational power", and to Catherine McCartin (Massey), for her "fundamental contributions to the development of efficient algorithms for computational problems in a variety of areas, and for her development of theoretical frameworks for parameterized counting problems and for parameterized approximation problems". The Aitken Prize for 2007 went to Peter Humphries (Canterbury) for his talk on "A basis exchange property for matroids" and to Ratneesh Suri (Massey) for "A real options approach to fisheries".

The Research Award for 2008 went to Mike Hendy of Massey University for his "innovative mathematical approach to molecular ecology and evolution which has transformed the field. His seminal work on the Hadamard transform—used to separate out pertinent signals in evolutionary data—is now an integral part of phylogenetic software internationally and has contributed to the solution of several fundamental problems". I presented the award to Mike at the Science Honours Dinner held at Te Papa in November and I am grateful to the Royal Society for selecting our award for presentation. There was a good amount of publicity about the award. The 2008 Early Career award and Aitken prizewinner will be announced tonight at the colloquium dinner.

I am very happy with the number and strength of the nominees for both of the awards and I would encourage all of our members to continue to nominate strong candidates.

Other Honours

New Zealand mathematicians continue to be showered with honours and awards. Chris Wild (Auckland) was elected FRSNZ in 2007 and Mick Roberts (Massey) was elected FRSNZ in 2008. This brings to 30 the number of mathematicians and statisticians who are Fellows of the Royal Society of New Zealand. Rod Downey (Victoria) is a 2008 James Cook Fellow. Ross Ihaka (Auckland) received the RSNZ Pickering Medal for excellence and innovation in the practical application of technology (for the development of the R statistical language). Gaven Martin (Massey) received the 2008 Hector Medal for "deep and wide-ranging contributions to the theory of Kleinian groups, geometric function theory and other fundamental parts of modern mathematics, including the solution of a number of difficult and long-standing problems". He is only the third living mathematician to hold this medal (after Roy Kerr and John Butcher). He is also, I believe, the only New Zealand mathematician to have published in both the *Annals of Mathematics* and *Acta Mathematica*.

Carlo Laing (Massey) won ANZIAM's 2008 J H Mitchell Medal, Mike Hendy (Massey) won one of four New Zealand Science & Technology Medals, and John Butcher (Auckland) was awarded a prestigious Honorary Fellowship of the European Society of Computational Methods in Sciences and Engineering, for his "outstanding contribution in the field of computational mathematics and numerical analysis".

Congratulations to all of these recipients.

Thanks

I would like to take this opportunity to say thank you to some of the officers of our Society who are stepping down. John Harper stepped down as NZMS Archivist in 2008 after holding this office since at least 1987; thanks also to Peter Donelan for taking on this role. Thanks to Tammy Smith who is passing what is probably our least contested office, Treasurer, on, also to Peter Donelan. Thanks to Tammy Smith and Gaven Martin whose terms on Council have ended. Finally, thanks to Mark McGuinness for ably editing the newsletter since 2006 and to Alex James for taking it on.

Jones Medal

The Council today approved the establishment of the Jones Medal, a project initiated by Gaven Martin during his term as president. This medal will be awarded biennially by the Royal Society of New Zealand for lifetime achievement in the mathematical sciences, that is, in pure and applied mathematics and statistics. I hope that this medal will over the years to come continue to justly commemorate the enormous contribution made by Vaughan Jones to mathematics in New Zealand, not least by his involvement in the outstanding series of NZMRI summer workshops, which I hope to see continue for many decades.

Robert McLachlan
President

EDITORIAL

Kia ora koutou. Welcome to Canterbury's second edition of the newsletter. The first seemed to go reasonably well (though I'm sure our office staff may have disagreed as they stuffed envelopes for an afternoon) except for a small oversight. I apologize to Gary Tee and the other members of the Auckland mathematics community for their apparent lack of news in the last edition. We have included this (and their more current news) in this edition. To help us redress this error we have broken from tradition (though not permanently) by including the Auckland mathematics department as our centrefold piece in this addition. Thanks to David Gauld for contributing this piece.

Alex James
Editor

LOCAL NEWS

AGRESEARCH

Tony Pleasants, Tanya Soboleva and Paul Shorten were awarded the Waikato regional science KuDos award in the Agricultural Science category. The team of mathematicians and microbiologists has developed a software tool (FoodQSM(tm)) that is being used by New Zealand meat exporters to predict the shelf life of exported meat. The widespread use of this software tool by New Zealand meat processors has the potential to save the industry tens of millions of dollars each year. The award included an $8,000 cash prize and details of the awards night can be found at `http://www.thekudos.org.nz/winners.html`.

Zaneta Park attended the R workshop in Melbourne, and returned full of enthusiasm for its potential; she also went to the International Meeting of the Microarray and Gene Expression Data Society at Riva del Garda, Italy, where she presented two posters.

Harold Henderson, Catherine Cameron and Roger Littlejohn were involved in the organisation of this year's NZSA conference and Ken Dodds gave an invited talk in the Statistical Genetics session. In a new initiative this year, AgResearch has hosted two European interns on six month placements as part of their degrees. Dorothee Ball worked with Roger Littlejohn on "Utilising DNA-based breed composition estimates to improve accuracy of breeding value estimates in red deer" and Yann Poulouin worked with Neil Cox on "Heat stress in cattle".

The AgResearch FoodQSM(tm) winning team receive their Waikato regional science KuDos award in the Agricultural Science category. From left to right are Tanya Soboleva, Guill Le Roux, Paul Shorten, Tony Pleasants and Ross Clarke.

Paul Shorten

THE UNIVERSITY OF AUCKLAND

DEPARTMENT OF COMPUTER SCIENCE

Peter Gibbons died on February 13 and Santock Singh died on February 20. Bob Doran's obituary of Peter was published in Newsletter 102, and an obituary of Santock will appear in a later Newsletter. Christof Lutteroth started as a Lecturer on July 7.

Cris Calude has been nominated by the Academia Europaea Informatics Section to become a member of Academia Europaea. That academy is a group of (mostly) European scientists and scholars, who aim to build awareness and appreciation of science and academia. Membership is by invitation only, after peer nomination and review. The astrophysicist Sir Ian Axford is the only other member in NZ - the chemist Robin Clark (London, from NZ) is also a member. And that Academy awarded Cris a Leverhulme Trust Grant, to organize the workshop on "Grand Challenges of Unconventional Computation". Also, Cris received a Hood Fellowship for 2009, with which he will visit several research groups in Europe, to establish a formal collaboration between researchers at the University of Auckland and those European researchers.

Brian Carpenter gave the IET (Institute of Engineering and Technology) New Zealand 2008 Prestige Lecture series of 8 lectures, around the country during May and June. In Auckland his lecture examined "The Internet: Where did it come from, why did it succeed, and where is it going?". And Brian has gained funding from Huawei Networks' research department for consulting on a research strategy.

Alan Creak has been a member of the Computer Science department since 1984, before which he had been in the university's Computer Centre since 1973. Successive Heads of the Department had supported his continuing activities here over the past 9 years, but Alan decided that the time has come to withdraw quietly from the Department.

Paul Denny, Andrew Luxton-Reilly and John Hamer gained the "best paper" award at ICER. Paul noted that this was done by popular acclaim. On the last day of ICER, attendees voted on which paper they felt had the most potential, or was the most exciting or most innovative. There was a single award, so it could be interpreted as a "best paper" award, although it was not specifically called "best paper". Their paper won the award (of the 16 papers at the conference), and it was apparently a "clear" winner!

Michael Dineen and the University of Auckland team were the South Pacific Champions in the ACM World Finals of the Programming Contest. They were also in the top 100 of the 7000 teams competing in the competition.

Alexei Drummond and Dr M. A. Suchard have been awarded a Marsden grant of $693,000, for their project "Geographic dynamics of evolving viral populations"

Georgy Gimel'farb was awarded an ISAT one-year funding of $6,500 for his collaboration with Boris Flach (Dresden University of Technology), and also he has received an FRDF grant of $15,000 for his project "Image modelling using Markov-Gibbs random fields with multiple third-or-higher-order interactions".

John Grundy won the ITI Techmedia Tool Demo Award for the research demonstration "likely to have the most impact on industrial practice" at IEEE/ACM ASE 2008. And he has received a BuildIT Postdoctoral Fellowship award of $118,000. The team of John Hamer, Andrew Luxton-Reilly, Paul Denny, Beryl Plimmer and John Hosking received a VCSDF award of $150,000, for their project on "Contributing Students: eLearning tools to support collaborative teaching and learning".

John Hosking received an award for Teaching Excellence in Research Supervision at the Graduation ceremony in May, and he received a 2008 National Tertiary Teaching Excellence Award in a ceremony at Parliament on July 16. John Hosking and John Grundy won the BuildIT Research Publicity Prize for ACT applied to industry.

Bakh Khoussainov and Andre Nies have been awarded a Marsden grant of $415,000, for their project "Aspects of computability in algebra, model theory, and randomness". And Bakh has given his Inaugural Lecture as Professor.

Reinhard Klette's treatise (with Fay Huang and Karsten Scheibe) on "Panoramic Imaging: Sensor-Line Cameras and Laser Range-Finders" has been published by Wiley. Reinhard has also received $120,000 from Hella Aglaia (in Germany) to establish a PhD scholarship for the *.enpeda..* project.

Andrew Luxton-Reilly and Paul Denny have won a 2008 Teaching Improvement grant of $7,940 for their project "Providing customised feedback for students in very large classes".

Bruce MacDonald (from ECE), in collaboration with Jim Warren, John Hosking, John Grundy and many other academics at the University of Auckland, have gained IIOF funding from FRST for their HealthBots project.

Emilia Mendes has been promoted to Associate Professor.

John Morris has received a FRDF grant of $29,737 for the project "Dynamic object tracking".

Beryl Plimmer won the BuildIT Research Prize in Education, she gained a BuildIT Early Career Travel Grant of $4,500 and she has received a Fast Start grant of $300,000 for the project "Investigating features and algorithms for recognising hand-drawn diagrams". Also, Beryl Plimmer and John Grundy have received a US$15,000 research grant from the Microsoft Research Asia foundation for their project on "Mobile Computing in Education". This is Beryl's third grant from the foundation. Furthermore, Beryl Plimmer, John Hosking and Gerald Weber received $14,000 from the Seelye Charitable Trust Fellowship to bring Stephen Brewster to New Zealand.

Gerald Weber gained an ISAT award of $6,000 from the RSNZ to develop his collaboration with Prof. Rausch (Technische Universität Clausthal).

The team of Mark Wilson, Michael Dineen and Andrew Luxton-Reilly received a 2008 Teaching Improvement Grant of $8,000 for their project "Automated assessment of programming assignments".

Koray Atalog (from the Middle East Technical University, Turkey) works in the field of Health Informatics. He has become our inaugural Bedogni Fellow, starting on September 8.

Recent visitors include Kai Berger, Tanya Conte, Wang Dangling, Suzanne Fischer, Pao (Medrano) Garcia, Bruno Grenet, Renee Miller, Antoine Rochette, Frank Rusky, Jiang Ruyi and Frank Stephan.

SEMINARS

Hans Burkhardt (University of Freiburg), "Learning and classifying anisotropic 3D morphologies and structures in biology and medicine: automated pollen recognition"

Margaret Boden (University of Sussex), "AI and Creativity"

Mike Culver "What's possible in a post-Web 2.0 world?"

Aaron Williams (University of Victoria, Canada), "The coolest way to generate balanced parentheses"

Norsaremah Salleh "A systematic review of pair programming research in higher education"

David Pearce (VUW), "Java bytecode verification for @NonNull types"

John Hosking "Confessions of a meta-modeller"

Sartaj Sahni (Bioengineering Institute), "Data structures and algorithms for packet forwarding and classification"

Bob Doran "Something old, something new"

Muhammad Shaban Jokhio "Goal-based testing of semantic web services"

Andrew Luxton-Reilly "A Study on women in computer science"

Muhammad Sulayman "A systematic literature review (SLR) of software process improvement for small and medium web companies"

Paul Denny "PeerWise: student contributed assessment questions"

Christof Lutteroth "Modular specification of GUI layout using constraints"

Gerald Weber "End-User GUI customization"

Richard Stallman "Copyright vs community", "Free software and the GNU/Linux operating system" and "Free software movement"

Barry Blundell (AUT), "Making space for 3-D images, with emphasis on volume visualisation"

Nevil Brownlee "Network measurements: Auckland's campus network"

Mark Gahegan "n geologists and at least n+1 opinions! - representing and computing with knowledge in the natural sciences"

Peter Davis "Developing a simulation model of health care: applying computational social science to policy"

Mark Hill "Amdahl's Law in the multicore era"

Renee Miller "Efficient management of inconsistent and uncertain data"

Georgy Gimel'farb, A-Prof. Ian Watson "AI and IA in ISI: random walks around"

Zulfiqar Ahmad "Compliance of Pakistan's Identity Management System with the Quran"

Zhiyi Huang "View-oriented parallel programming"

Hermann Maurer "Theory is important but dangerous"

Hayden Young "Extending bi-directional search to handle partial state descriptions"

John Hosking "Mind the gaps"

Jun Sun "Introducing a process analysis toolkit: model checking and fairness"

Wolfgang Fahl "Why Cathedral Bazaar and Bridge are competing software engineering metaphors"

Garry J Tee

DEPARTMENT OF ENGINEERING SCIENCE

On 27 August a small ceremony was held to officially recognize the Department's presence at 70 Symonds Street — years after it physically moved there. This event was the opening of a week of celebrations. The department was founded 45 years ago by Cecil Segedin and Mervyn Rosser. The first graduates completed in 1968 (hence the 40th birthday celebrations). The main event was a dinner on 30 August at the Langham Hotel. More than 380 people attended the function. See `http://www.esc.auckland.ac.nz/success-stories/40th-anniversary-celebrations/` for more details. Much effort has gone into the publication of a history of the department. The book is available for $30 plus postage and packing from the department.

We also have to report a new list of Visitors. Associate Professor Karen Willcox from the Department of Aeronautics and Astronautics at MIT (and graduate of Engineering Science in 1993) is back for a sabbatical in Auckland. Professor Anita Schoebel from the Department of Mathematics, University of Göettingen, Germany is exchanging a German winter for a NZ summer during her sabbatical. She is working with the correspondent on multicriteria optimization and optimization in transport. Professor Shmuel Oren, Department of Industrial Engineering, UC Berkeley is working with Golbon Zakeri on mechanism design for efficient energy markets under uncertainty.

Richard Lusby completed his PhD on "Optimization Methods for Routing Trains Through Railway Junctions". The day after his oral he set off for Denmark where he now has a postdoc position at DTU, Denmark's Technical University.

SEMINARS

Jennifer Siggers (Imperial College London), "Mathematical modelling of blood flow in curved arteries"

David C. Goodrich (USDA-ARS-SWRC, Tucson, Arizona), "LIDAR (Laser Detection and Ranging): An Overview"

Richard Lane (ARANZ), "Modelling geology using implicit functions"

Karen Willcox (MIT), "Model reduction for uncertainty quantification in large-scale complex systems"

Shmuel S. Oren (UC Berkeley), "Modeling and computing oligopolistic strategic forward market equilibrium in a congested electricity network" and "Hedging fixed price load following obligations in competitive electricity markets"

Matthias Ehrgott

DEPARTMENT OF MATHEMATICS

Here we include news from the mathematics department which was intended for the August 2008 NZMS edition. Once again we apologise for our error in omitting this news from the previous edition. Current news follows.

Nine members of our Mathematical Education Unit (staff and doctoral students) attended the 11th International Congress on Mathematics Education (ICME-11) at Monterey, Mexico in early July 2008, along with about 2500 other delegates. The big news from this meeting is the election of Bill Barton to be incoming President of ICMI (International Commission on Mathematical Instruction) in this centenary year of ICMI (founded by Felix Klein). Bill's presidency will be the period 2010-2012. To put this into some sort of perspective, let us ask "When will a New Zealand mathematician be elected President of the IMU?" ICMI is just as Eurocentric as IMU, so Bill's election is a great personal honour, as well as a special recognition of our Department and its Mathematical Education Unit. Of course, there was a huge selection of lectures, workshops and study topic groups to attend. It was almost mind-blowing. One of the great features of such a huge meeting is the chance to meet old and new friends often an unexpected meeting is the best, it feels like icing on the cake. This was the first ICME held in a Latin American country, and Monterey turned out to be a very good venue. One thing that was very noticeable was the large number of delegates from Latin American countries, and the similarly large number of papers presented in Spanish or Portuguese - usually with English overheads.

Hannah Bartholomew has returned from maternity leave, and now she takes over as Head of the Mathematics Education Unit. Mike Thomas, after his long term as the Head, is off for this semester on his well-earned Research and Study Leave.

Marston Conder attended a conference on Topological and Geometric Graph Theory in Paris in May, and the joint work he presented there with Jozef Siran (now in the UK) and Tom Tucker (New York) on genus spectra for various classes of symmetric graph embeddings on surfaces has been accepted for the prestigious Journal of the European Mathematical Society. In June, Marston was an invited speaker at the 2nd International Workshop on Group Theory and Algebraic Combinatorics in China (held in two parts, at Peking University and Yunnan University). Marston has now completed his term as President of the Academy of the Royal Society of NZ, and has become its first Vice-President International. He is also serving as Deputy Chair of the TEC's Sector Reference Group considering possible changes to the PBRF for the next research quality assessment round (2012).

David Gauld was one of the Auckland invited speakers at the conference "Advances in Set-Theoretic Topology" in Honour of Tsugunori Nogura on his 60th Birthday, which was held on June 9-19, in Erice, Sicily, Italy. His talk was entitled "Bagpipes and their dynamics." Afterwards he attended the 7th Iberoamerican Conference on Topology and its Applications, 24-28 June, Valencia, Spain and presented a talk entitled "Foliations and non-metrisable manifolds." He then spent 2 weeks in Geneva working with Mathieu Baillif and Alexandre Gabard (and Sina Greenwood for the first 4 days).

Rod Gover has now been promoted to Professor. This promotion reflects and acknowledges his distinguished contributions to research, teaching, and service within the Department, the University, and the wider academic community.

Sina Greenwood gave an invited talk at the conference "Advances in Set-Theoretic Topology" in Erice. Then she visited Chris Good at Birmingham University for 2 weeks in June.

Edward Huang is leaving, for a post-doctoral fellowship in Japan. Barbara Kensington-Miller, who recently graduated as Ph.D., has accepted an appointment as Lecturer at the Centre for Academic Development at the University of Auckland.

Chris King was interviewed on National Radio about Lorenz, the butterfly effect, Mandelbrot and fractals, neuroscience, Archimedes and Eureka. Barbara Miller-Reilly's lecture on "Metaphors as a methodology for qualitative data in adult learning

of mathematics" at ICME-11 (in Monterey) was very well-received.

Eamonn O'Brien delivered his Inaugural Lecture, on "Gnus, moas, porcs and other exotica - a mathematical odyssey".

Arkadii Slinko visited his co-author Murali Agastya at Singapore in June, and they worked on a paper. In July he attended a conference on Foundation of Utility and Risk (FUR XIII) in Barcelona, and he gave an invited lecture at the University in Karlsruhe, where he visited Prof. Clemence Puppe and Prof. Detlef Seese. Arkadii is on the program committee of COMSOC (Computational Social Choice Workshop), which will take place in Liverpool in September.

Shixiao Wang has won a $4000 grant from the ISAT Linkages Fund, administered by RSNZ.

Dr Amanda Elvin (formerly at Massey) is here as a Post-Doctoral Fellow in Mathematical Physiology.

In February 2008 the Centre of Mathematical Content for Teaching (CMCT) was established under the auspices of our Department, to provide content-based professional development opportunities for teachers. In the first school term both of the courses provided were very successful, attracting a total of 43 teachers. Prof. James Sneyd presented 4 workshops on the Mathematics of Disease, and Dr Judy Paterson presented workshops focussed on Calculus in Years 12 and 13. On May 13, Dr Rachel Fewster (Department of Statistics) presented "Whales and Rats", a course about statistics and the environment.

Research grants from the PBRF have been awarded to the following members of our Department: Robert Chan $2500, Rod Gover $4500, Sina Greenwood $6000, Mike Meylan $3500, Greg Oates $3000, Philip Sharp $3000, Arkadii Slinko $6000, Tom ter Elst $3000, Mike Thomas $3500, Shixiao Wang $4000.

On May 13, Mike Thomas and colleagues organized the LOGOS #16 One-day Conference on the construction of knowledge in mathematics. Featured were A-Prof. Andy Begg (AUT), Prof. Tommy Dreyfuss (Tel Aviv University), Gaye Williams (Deakin University), with Sepideh Stewart, Caroline Yoon and Mike Thomas.

On May 25 the annual Auckland Mathematics Olympiad took place and it went very well, thanks to the organizing efforts of Gordon Hookings and markers who volunteered to run the event. MLT1 was full of students, and it was especially pleasing that many former Mathematics Olympiad students came to participate in the event.

The GLADE conference on numerical solution of ODEs, with a special emphasis on General Linear Methods, was held in July in Auckland. It was sponsored by the University of Auckland, AUT University, NZIMA and ISAT programme. The first week was in formal conference format, and the second week was an informal workshop where participants had a chance to talk with others working in similar areas. About 23 people came from within NZ, plus about 33 people from 20 other countries. It had been hoped to have two people from Nigeria and one person from Sri Lanka, but visa issues prevented that. At the dinner we took the opportunity to celebrate John Butcher's 75^{th} birthday earlier in the year. Recent visitors include: Prof. Paul Binding (University of Calgary), Dr Tim Burness (University of Southampton), Dr Laura Hewitt (University of Bath), Prof. Rene Huijsmans (TU Delft), Dr Roberta Hunter (Massey University), Dr Erin Landguth (University of Montana), Simon Marshall (Princeton University), Prof. Fabien Montel (Ecole Centrale Nantes), Dr Scott Murray (University of Sydney), Dr Helmut Podhaisky (University of Halle), Prof. Mick Roberts (Massey University - Albany), Prof. Derek W. Robinson (ANU), Prof. Hyam Rubinstein (University of Melbourne), Dr Jan Slovak (Masaryk University), Dr Emily Stone (University of Montana), Prof. Jim Verner (Victoria University of British Columbia), Dr Christoper Voll (University of Southampton), Prof. Andrew Waldron (UC-Davis).

Emily Harvey and Alethea Rea are two of our PhD students, and now they have been awarded Top Achiever Doctoral Scholarships in the recent round. Sepideh Stewart has defended her PhD and, without prejudicing the outcome of the formal process, she will be awarded the degree once the usual corrections etc. have been made.

SEMINARS

Maxine Pfannkuch "Building sampling concepts for statistical inference: a case study"

Felicien Bonnefoy (Ecole Centrale de Nantes), "Higher-order spectralmethods applied to nonlinear ocean waves

Sepideh Stewart "Linear algebra thinking: embodied, symbolic and formal"

Robert Raphael (Concordia University, Montreal), "Some Lindelöf P-sets in beta X", and "Two characterisations of Lindelöf spaces which are P-sets in their compactifications"

Antonio Politi "Modeling smooth muscle cells in a lung slice"

Peter Cameron (Queen Mary London), "Cores, hulls and synchronization", "Sudoku: Is it Mathematics?" (Public Lecture), and "The random graph"

Isabel Hubard "Monodromy groups of polytopes and self-invariance"

Hyuck Chung "Vibration of rib-reinforced floor/ ceiling structures"

Joerg Frauendiener (University of Otago), "The constraint equations of General Relativity"

Jiling Cao (Auckland University of Technology), "When is the Wijsman topology Baire?" (2 lectures)

Callum Sleigh "Spencer cohomology and generalised BGG sequences" (2 lectures)

Graeme Wake (Massey University - Albany), "Spontaneous ignition: assessment of cause"

Niels Bernhardt "Maximally supersymmetric geometries"

Sina Greenwood "Abstract dynamical continua" (2 lectures)

Paul Binding (University of Calgary), "Eigencurve methods for some generalised eigenvalue problems"

Daniel Weiss "Differential-algebraic equations are not ODEs"

Shixiao Wang "How to solve nonlinear partial differential equations"

Roberta Hunter (Massey University), "Teachers developing collective argumentation within a community of mathematical inquiry"

David Gauld "Bagpipes and their dynamics"

Jennifer Salmond "Wavelet analysis of turbulence in the atmospheric nocturnal boundary layer"

Mick Roberts (Massey University), "The mathematics of plagues, epidemics, and pandemics"

Jagir Hussan (Bioengineering Institute), "Modelling multiscale phenomena in biological structures: search for rich spaces and elegant representation"

Scott Murray (University of Sydney), "Applying PC-group methods to algebraic groups"

Tim Burness (University of Southampton), "Permutation groups, base sizes and probabilistic methods"

Christopher Voll (University of Southampton), "Functional equations for zeta functions of groups and rings"

Hyam Rubinstein (University of Melbourne), "Learning theory, compression and hyperplane arrangements"

Tommy Dreyfus (Joan and Jaime Constantiner School of Education), "Bifurcations in dynamical systems, interacting parallel constructions of knowledge, and justification as enlightenment"

Jan Slovak (Masaryk University), "Weyl connections for parabolic geometries"

Erin Landguth (The University of Montana), "Modeling tick-borne relapsing fever on Wild Horse Island, Montana-USA"

Garry J. Tee

Claire Postlethwaite arrived in the Department on August 18, and it is wonderful to have our new Applied Mathematics staff member with us. She arrived from the UK and USA with her partner Graeme, who is a Research Fellow in the BioEngineering Institute.

The elusive Steven Galbraith arrived from England in the middle of Semester 2 and immediately began teaching. At the end of lectures he headed off to the UK, and he is due back here (more permanently) in June 2009.

Jari Kaipio arrived from Finland on October 6th after a prolonged tangle with bureaucracy (NZ), and so we are fully staffed for the first time in too many years.

David Bryant and Melanie are very happy to announce the arrival of Max.

John Butcher was awarded (in September) an Honorary Fellowship, the highest honour of the European Society of Computational Methods in Sciences and Engineering, "for his outstanding contribution in the field of Computational Mathematics and Numerical Analysis". In addition his 75th birthday was honoured at the International Conference in Numerical Analysis and Applied Mathematics ICNAAM 2008, held at Kos.

Marston Conder has given invited lectures at an ICMS Workshop in Edinburgh, and at a BIRS Meeting in Banff.

Rod Gover and Gaven Martin would like to express their sincere thanks to the Department for helping host their NZIMA research conference "Parabolic Geometry and PDE" in August, and also the (ongoing) Focussed Research Period "Parabolic geometry, PDE and prolonged systems".

In view of recent activities by Ivan Reilly on our behalf in schools around the region, Bill Barton has conferred on him the title of Honorary Departmental Ambassador. Bill requests that, from now on, Ivan be addressed in the Common Room (when he deigns to appear there) as "Your Excellency".

Arkadii Slinko attended the 2nd International Workshop on Computational Social Choice (COMSOC-2008) in Liverpool, on September 2 - 5. He served as a program committee member for that conference and gave a talk. The University of Auckland hosted the 5th Pan-Pacific Conference on Game Theory on November 19 - 21, organized by the Departments of Mathematics and of Economics, with Arkadii on the organizing committee. Some prominent economists were keynote speakers: Professor In-Koo Cho (University of Illinois at Urbana-Champaign), Professor Simon Grant (Rice University), Professor Andy McLennan (The University of Queensland) and Professor Jeroen Swinkels (Washington University in St. Louis).

Philip Sharp has had two successes recently. He has been successful in a collaborative application for a NASA grant to study the icy moons of Saturn. It has funding for 2009 extendable for 2 years, and he'll be off to JPL 2 or 3 times next year. In addition, an article on joint work he did with Kevin Grazier (JPL) and William Newman (UCLA) has appeared in on-line New Scientist. They computed the trajectories of 40,000 random planetoids under gravity of the Sun and the 4 large planets, over a billion years. They found that Jupiter's gravity kicked many of those planetoids out of the solar system, but a significant number of them were shifted into orbits closer to the Sun. That could be an explanation for the traces of the late heavy bombardment of the Moon, Mars and some other bodies, about a billion years after they had reached about their present mass by accretion of planetoids.

Professor Edgar Knobloch (UC-Berkeley) ended his visit as MacLaurin Fellow on October 20th. He worked on projects with Vivien Kirk, James Sneyd and Mike Meylan, as well as giving seminars, a colloquium, and completing writing five papers.

Recent visitors include: Prof. Paul Baird (University of Brest), Prof. Paul Binding (University of Calgary), Prof. Robert Bryant (MSRI and UC-Berkeley), Prof. Andreas Cap (Erwin Scroedinger Institute and University of Vienna), Prof. Chih Chang (National Tsing Hua University, Taiwan), Dr Javier Cirre (UNED Madrid), Prof. Mike Eastwood (University of Adelaide), Dr Matthias Hammerl (University of Vienna), Prof. Gerhard Hiss (RWTH Aachen), Prof. Charles Leedham-Green (Queen Mary, University of London), Dr Horst Malchow (University of Osnabrück), Dr Katharina Neusser (University of Vienna), Prof. Mike Newman (ANU), Dr Lina Mohd. Noor (MARA Organisation, Malaysia), Prof. Peter Somberg (Charles University of Prague), Prof. Vladimir Soucek (Charles University of Prague), Dr Marko Tomic (University of Zagreb), Prof. Stephen E. Wilson (Northern Arizona State University).

The New Zealand Mathematics and Statistics Postgraduate Conference (NZMASP 2008) was held at Aotearoa Lodge of Whitianga, from November 18 - 21. It was successfully organized by our PhD students Howard Cohl and Alethea Rea. Fourteen students from the Department of Mathematics took part, together with many from the Department of Statistics. Vaughan Jones attended, and gave recollections of his experiences as a graduate student.

Louise Sheryn has worked in this Department over the last year as a Research Assistant for both Sina Greenwood and Hannah Bartholomew. She has now become a Post-Doctoral fellow in a combined post that is partly the HoD post-doctoral position, and also the position associated with the Mathematics Education NZIMA programme for 2009-2010. She will be working in both roles on the Pipeline Project, an international project tracking mathematics students from school through university to the workplace.

Pavla Sehlanov, a research student at Brno University of Technology, has begun a 1-year visit as a research student.

A University of Auckland Doctoral Scholarship was won by Yuri Vyatkin, and a University of Auckland International Doctoral Scholarship was awarded to Manfred Sauter.

Alison Kohout has passed her PhD oral examination, without any revisions being required in her thesis.

SEMINARS

Andreas Cap (University of Vienna), "Cartan connections"

Howard Kohl "Fourier expansions of the fundamental solutions for powers of the Laplacian in R^n"

Ali Jaballah (University of Sharjah, UAE), "Finiteness conditions on the set of intermediate rings"

Michael Eastwood (University of Adelaide), "Differential complexes on complex projective space, continued", and "Differential complexes on complex projective space II"

Keizo Yamaguchi (Hokkaido University), "Contact geometry of second order"

Paul Baird (University of Brest), "Q-curvature prescription on even-dimensional manifolds"

Nick Depree "Mathematical modeling of an annealing furnace"

Tsugunori Nogura (Ehime University, Japan), "Extreme selections and dimensions"

Stuart Armstrong (Erwin Schroedinger Institute for Mathematical Physics), "Einstein involutions on parabolic geometries"

Andreas Cap (Universitt Wien), "Homogeneous Cartan geometries, extension functors and Fefferman constructions"

Simon Marshall (Princeton University), "Cohomology, spectral gaps, and the congruence subgroup property"

Edgar Knobloch (UC-Berkeley and University of Auckland), "Spatially localized structures in dissipative systems", and "Spatially localized patterns"

Andreas Juhl (Humboldt University Berlin), "On the structure of Q-curvature (2 lectures)"

Tommy Dreyfus (Tel Aviv University), "How can we know whether it is a proof?"

Tim Burness (University of Southampton), "Counting prime-order subgroups in finite groups"

Ray Hoare (Hoare Software), "Engineering Mathematics and Simulation with MapleSim", and " Physical domain modelling with MATLAB"

Frank Himstedt (Technical University, Munich), "Characters of parabolic subgroups of the big Ree groups"

Claire Postlethwaite "Optimal movement in the prey-capture behaviour of weakly electric fish"

Horst Malchow (University of Osnabruck), "Spatiotemporal pattern formation in models of population dynamics"

Stuart Scott "Generation of $M_0(V)$"

Graham Donovan "Rare event simulation for lightwave systems using the cross-entropy method"

Bill Barton, Louise Sherryn "Teacher knowledge: gathering the data"

Steve Wilson (Northern Arizona University), "Consistent cycles in symmetric graphs"

Jim Ridgway (Durham University), "From data to knowledge: Understanding and promoting public understanding of evidence"

Gerhard Hiss (RWTH Aachen), "The Weil-Steinberg character of finite classical groups"

Brian Butterworth (University College, London), "Language and number: evidence from indigenous Australia"

Garry J. Tee

DEPARTMENT OF STATISICS

Ross Ihaka has been reaping rewards from the unprecedented success of the statistical software R, which originated in the early 1990s from a conversation in the corridor between Ross and Robert Gentleman, and is now used by more than a million statisticians and scientists around the world. In November, Ross was awarded the Royal Society of New Zealand's Pickering Medal. In January, he was featured in the Technology section of the New York Times, catchily subtitled "R you ready for R?" The article, best found by googling "Ross Ihaka NYT", became the online Times's 10th most-forwarded story - a point quickly noted by the New Zealand Herald, who accoladed the "rock star status" of global technology's happy Westie.

Congratulations are due to several of our PhD students. Christian Roever, who completed his PhD with Renate Meyer last year, won a prestigious university Best Doctoral Thesis award. Kristy Su has been awarded her PhD, and Steven Miller sailed smoothly through his oral exam. Jenny Wilcock won the first prize in the poster competition at the ASC in Melbourne, and she was in good company: the three ASC prizes all went to New Zealanders.

Patricia Metcalf received the NZ Medical Association's Richard Robinson Award for excellence in medical writing, for her 2006 paper in the NZ Medical Journal: "Trends in major cardiovascular risk factors in Auckland", coauthored with Robert Scragg, David Schaaf, Lorna Dyall, Peter Black and

Rod Jackson. Fortunately, the excitement of prize-winning did not emerge as a major cardiovascular risk factor, and the authors were able to enjoy their success with the help of a cholesterol-free beverage rich in antioxidants.

George Seber celebrated his 70th birthday in style in April, with a lunch in Old Government House crammed with colleagues from his long career spanning five decades and two departments at the University of Auckland. George joined the Department of Mathematics in 1965, and became the university's first Professor of Statistics in 1972. He founded the Stats department in 1994, and 14 years later still seems to be getting younger every year. From this we can deduce that the secret to long life and happiness is to write an average of 0.26 statistics textbooks a year for 38 years.

The department's Marsden awardees from 2007 are progressing apace with their new projects. Marti Anderson gained an $800,000 grant to explore underwater ecosystems on the Lord Howe Rise seamount using underwater submersibles. The submersibles go down to a massive 1000m, where the ocean is dark, scary, and full of unknowns. Marti's project is among the first to use manned (or even womanned) submersibles in the southern hemisphere. Marti gained a huge response to her advert for two PhD students, with a total of 183 applicants from around the world. (Name the last statistics PhD advert to have generated this many applicants!) The best two applicants were - naturally - both Kiwis, and the lucky recipients Adam Smith and Kirsten Rodgers started on the project in November. The first trip into the (very) deep blue yonder will take place in 2009.

Meanwhile, Yong Wang's Fast-Start Marsden has already delivered a fast start to Steve Taylor, the Masters student working on the project. Steve won joint first prize from his first conference presentation at the NZSA 2008 conference in Hamilton, for his presentation on a fast algorithm for computing nonparametric survival functions.

Chris Wild did a round-the-world conference crawl in 2008, giving invited talks at the Western North American Region of the Biometric Society in California, OZCUTS in Melbourne, the International Biometric Conference in Dublin, the 2nd International CensusAtSchool Workshop at UCLA, and the Joint Statistical Meetings in Denver. He also visited Ray Carroll at Texas A & M University. He settled back home to get some work done before presenting three more invited talks in Japan in December, including IASC 2009.

And finally, Rachel and Regan Cunliffe have celebrated the arrival of their baby son Eli Daniel David. Not leaving anything to chance, Eli guaranteed his lucky stars by arriving judiciously on 8th August - known in numerological circles as 08/08/08. The time of arrival? 08:08 am naturally ... well, plus or minus two standard editorial licenses of 8 minutes each.

Rachel Fewster

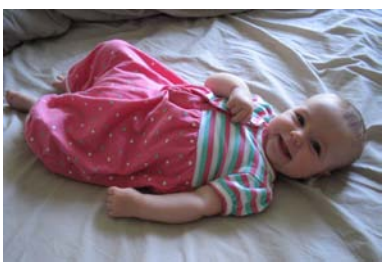
UNIVERSITY OF CANTERBURY

DEPARTMENT OF MATHEMATICS AND STATISTICS

Klaas Hartmann, Peter Humphries, Hannes Diener and Jean Gong have all passed their PhD oral examinations. Their thesis titles are "Biodiversity conservation and evolutionary models", "Combinatorial aspects of leaf-labelled trees", "Compactness under constructive scrutiny" and "Parametric potential-outcome survival models for causal inference" respectively. Klaas has moved to Tasmania for a three-year postdoctoral fellowship with a conservation agency: reportedly he is in charge of a small submarine!

James Degnan arrived in August with his wife Vanessa to take up a lectureship in statistics. Miguel Moyers-Gonzalez has accepted a lectureship in mathematics; he will arrive in mid-2009. Another new arrival is Chris Dowden, who has moved here for a one-year NZIMA-funded postdoctoral fellowship. David Robinson has delayed his move to Wellington and will be teaching with us for another year. Carl and Tiye Scarrott welcomed their first child, Clover Alice, late last year; Richard and Emily Brown welcomed their third, Eliana Grace.

Clover Alice Scarrott



Eliana Grace Brown

Congratulations to Mike Steel, who shared the College of Engineering Research Award for 2008, and to Mike Plank, who won the college's Emerging Researcher award. Mike Plank was promoted to Senior Lecturer, as was Carl Scarrott, and Marco Reale to Senior Lecturer above the Bar. PhD student Michael Langton won 2nd prize in the university's Entré 40K Challenge. Entrants had to develop and present a business model to a panel of judges; Michael's winning product *iType* is an on-screen keyboard, which provides context-sensitive word predictions. Jennifer Brown has become President of the New Zealand Statistical Association, which has moved to Christchurch, and Mike Steel has become Deputy Director of the Allan Wilson Centre. Charles Semple is the incoming Vice-President of the NZMS.

We hosted the 7th Australia-New Zealand Mathematics Convention in December, with 303 participants. A separate report appears elsewhere in this issue. PhD students Mareike Fischer and Nicole Kleinstreuer won the NZMS Aitken Prize and AustMS BH Neumann Prize respectively for their talks. It has been a successful year for Mareike, who also won the judges' award for best talk at the New Zealand Mathematics and Statistics Postgraduates' Conference in Whitianga in November (Peter Humphries won the People's Choice award for his talk).

Douglas Bridges gave four invited lectures at the Summer School on Mathematics, Algorithms and Proof, at the Abdus Salam ICTP, Trieste, in August. He then gave invited lectures at the Computability and Complexity in Analysis meeting, for Klaus Weihrauch's retirement from the Fernuniversität in Hagen, Germany, and at the Asian Logic Conference, in Kobe, Japan. Phil Wilson is spending three months in Japan based at the Riken research institution in Wako, Saitama. He is working mainly on properties of the red blood cell cytoskeleton and platelet aggregation in thrombus formation.

Recent visitors include: Prof Tsugunori Nogura (Ehime University), Prof James Oxley (Louisiana State), Prof Geoff Whittle (Victoria), Prof Horst Malchow (Osnabrück), Prof Brian Sleeman (Leeds), Prof Eamonn O'Brien (Auckland), Jenny Burrow (York), Prof John Brindley (Leeds), Dr Radu Mihaescu (Berkeley), Dr Katharina Huber (East Anglia), Prof Vincent Moulton (East Anglia), Prof Lior Pachter (Berkeley), Damien Sellier (SCION), Dr Frank D'Amico (Universidad de Pau et de los paises del'Ardour), Dr Robin Havea (University of the South Pacific), Prof Rick Laugesen (Illinois Urbana-Champaign), Prof Charmaine Dean (Simon Fraser), Dr Irene Hudson (South Australia).

SEMINARS

Horst Malchow (University of Osnabrück), "Reaction, diffusion and noise in models of plankton dynamics"

Jürgen Meyer (Canterbury), "An adaptive tumour tracking system"

Brian Sleeman (Leeds), "The ins and outs of acoustic obstacle scattering"

Marco Reale (Canterbury), "ART and its use"

Hannes Diener (University of Canterbury), "The light side of constructive reverse mathematics"

Chris Tuffley (Massey University), "The Three Reflections Theorem"

Eamonn O'Brien (University of Auckland), "Algorithms for matrix groups"

Richard Brown (University of Canterbury), "Emulating the eyes: exploring the world of 3D reconstruction from images"

Shawn Martin (Sandia National Laboratories), "Inverse molecular design using chemical fragments"

Miguel Moyers-Gonzalez (University of Durham), "A non-homogenous constitutive model for human blood flow in small vessels"

Jo Hoffacker (Clemson University), "An introduction to time scale analysis with application to the modelling of wild and transgenic mosquitos"

John Brindley (University of Leeds), "Fizzle or frazzle: problems with ignition"

Galit Shmeuli (University of Maryland), "Explanatory vs predictive modelling in scientific research"

Ben Martin

MASSEY UNIVERSITY

INSTITUTE OF FUNDAMENTAL SCIENCES (PALMERSTON NORTH)

Mike Hendy has been well rewarded with honours this year as he steps down from his co-directorship of the Allan Wilson Centre. In September he was one of four recipients of a New Zealand Science and Technology Medal, and at the Science Honours Dinner he was presented with the New Zealand

Mathematical Society Research Award — see the citation later in the Newsletter.

Bruce van Brunt once again visited the Korean Advanced Institute of Science and Technology (KAIST) for an enjoyable two month stay during the Korean autumn. He attended a conference on Jeju Island where he did not lose the opportunity to climb the highest peak in South Korea after the conference. Back from the land of morning calm, he is already looking forward to his next visit.

Our annual Maths and Stats Teachers' Evening in October was well attended with teachers again coming from as far afield as Hawkes Bay. Keynote speaker Jim Ridgway (University of Durham) demonstrated some innovative methods and interactive software tools for teaching statistics—those interested in trying the tools should visit `http://www.dur.ac.uk/smart.centre/freeware/`.

Robert McLachlan gave a very nice talk on chaos and prediction, convincingly tying it back to climate change and the distinction between climate and weather; and Tim Ball gave us an opportunity to handle gold in various stages of refinement as he outlined his statistical work underpinning the production of reference materials for gold ore.

This year's panel discussion focused on assessment ("We teach to promote learning. Yeah, right"), and as ever there was a lively discussion—although the teachers' talk of NCEA was something of a foreign language to those of us that went to school under School Cert and Bursary!

The 11th Manawatu-Wellington Applied Mathematics Day was held on the 23rd of October at the Turitea Campus, Massey University, Palmerston North. Marijcke Vlieg-Hulstman reports: "The Wellingtonians brought with them a bitterly cold and wet southerly that lowered the temperature to the top single digit within an hour or so but this did not dampen the spirit of this meeting". The venue was the Ira Cunningham Lecture Theatre in the Veterinary Tower named after the Foundation Dean of the Faculty of Veterinary Sciences established in 1962. This is the only lecture theatre at Massey in the shape of an amphitheatre. You will never be alone in this theatre as you are gazed upon by former Deans whose paintings are hanging on the wall. Because of being tiered this theatre is not suitable for exams and that was the reason for the venue as all other lecture rooms were under control and locked up by Examinations. There was a good participation and the talks were all of high standing and interesting. What to do without power point! Remember the smeared and blurred overhead transparencies? It was great that PhD students gave a talk about their research as well. Morning and afternoon tea were provided in the foyer. For lunch we had to brave the weather as we had to walk to the Institute of Fundamental Sciences' Common Room. There was plenty to eat and everybody mixed freely. After the meeting there were recovery drinks at Rosie O'Grady's Irish Pub followed by dinner across the road at the Bangkok Thai restaurant. Our thanks to the office staff for organizing the catering, and the Institute of Fundamental Science and the New Zealand Branch of ANZIAM for sponsorship.

Visiting us recently was Anand Tularam of Griffith University in Brisbane, who spent several weeks here working with Tammy Smith and Kee Teo. He spoke on his work modelling salinity in groundwater at the Applied Maths Day. And our most recent arrival is Fábio Santos, who joined us just last week from the Federal University of Mato Grosso do Sul in Brazil, where he completed his masterate. He will be studying towards his doctorate under Charles Little, in the area of consevative graphs.

Chris Tuffley travelled to Whitianga in November with eight of our maths and stats postgrads to attend the third NZMASP conference. He writes: "Once again it was a pleasure to attend this conference run by and for students, and to see it continue to grow. The organisation committee did a fantastic job, and the standard of talks was again very high — higher even than last year. It was great to see the breadth and quality of postgrad research being done in New Zealand, and the students making the most of this opportunity to meet and network. Roll on next year's!"

Allan Wilson Centre news: Barbara Holland writes: "The Allan Wilson Centre has a new director — Professor Paul Rainey. Paul took over the helm from David Penny and Mike Hendy at the annual meeting in October. He has some exciting new ideas for the centre and seems keen to ensure that there are strong links between the research groups at different locations around NZ. The annual meeting was necessarily more forward looking than usual, there was a lot of discussion about potential flagship projects that would both help link research across the centre and act as a platform for outreach to the public. We had an excellent birthday party for David Penny on his 70th. Trish McLenachan secured funding from Massey, the New Zealand Association of Scientists, and the Royal Society of New Zealand to put on a symposium at the Chateau. Many of David's old PhD students travelled from around the globe to take part in the event. There was a full day of talks on the Friday that covered David's diverse research interests from the origin of eukaryotic cells to the peopling of the Pacific. Mike Steel talked about mathematical aspects of inferring evolutionary trees. He

told of how starting a PhD with David and Mike was very bad for his publication rate — dropping it from hundreds of articles a year to just two. A loss for journalism but a gain for mathematical biology, I think!"

SEMINARS

Mike Meylan (University of Auckland), "Generalised eigenfunction expansion"

Contributed talks, Applied Mathematics Day

Jonathan Crook (Victoria University of Wellington), "The effects of brine plumes on platelet ice"

John Harper (Victoria University of Wellington), "Electrophoresis of gas bubbles: recent developments"

Shaun Hendy (Industrial Research Ltd and Victoria University of Wellington), "Capillary absorption of metal nanodroplets by carbon nanotubes"

Barbara Holland (Massey University), "Comparing the evolutionary longevity of sexual and asexual endophyte species"

Sione Paea (Industrial Research Ltd), "Deposition event using Kinetic Monte Carlo Algorithm"

Klaus Schliep (Massey University), "Relationship between hierarchical clustering and linear models"

Anand Tularam (Griffith University), "Influence of tidal activity on coastal groundwater level and salinity"

Brent Walker (Industrial Research Ltd), "Vibrational properties with density functional theory"

Graham Weir (Industrial Research Ltd), "Properties of transformation matrices for spinors with symmetrical binary indices"

Tim White (Massey University), "A fast and simple algorithm for finding the modes of a multinomial distribution"

Christopher Tuffley

INSTITUTE OF INFORMATION AND MATHEMATICAL SCIENCES (ALBANY)

We are delighted to report that Associate Professor Marti Anderson from the University of Auckland has accepted the position of Chair of Statistics here at Albany to replace Jeff Hunter. Marti will join us at the beginning of February 2009.

Several people from the Stats group participated in the NZSA2008 conference in Hamilton on the 1st and 2nd of September 2008. Jeff Hunter and Beatrix Jones gave invited presentations. Congratulations to John Gang Xie who took joint first student prize for his presentation. John's paper was on "Model selection and statistical inference of autoregressive conditional duration models".

The 5th annual IIMS Postgraduate Conference was held on 23 October and once again was a great success. John Gang Xie won the best poster presentation and Qing Zhang won the best oral presentation.

Gaven Martin has been awarded the 2008 Hector Medal by the Royal Society of New Zealand. The Hector Medal is awarded in rotation to a researcher in the chemical sciences, physical sciences, mathematical and information sciences who 'has undertaken work of great scientific or technological merit and has made an outstanding contribution to the advancement of the particular branch of science'. Congratulations Gaven on this prestigious award!

Three members of IIMS were successful in the latest Marsden Fund round. Carlo Laing (PI) and Alona Ben-Tal (AI) are collaborating on a project entitled "Complexity reduction in neural models" with Dr Jeffrey Smith from the National Institutes of Health, USA and Prof Yannis Kevrekidis from Princeton University. Mick Roberts will work on "Modelling a virus that doesn't (yet) exist" with his long-term collaborator, Prof Hans Heesterbeek, at the University of Utrecht. The latest Marsden Fund success was just the beginning for Mick Roberts who has been elected as a Fellow of the Royal Society of New Zealand on 5 November and who has accepted a co-appointment to full-membership of the New Zealand Institute for Advanced Study. Mick will be 0.2FTE in NZIAS and 0.8FTE in IIMS so we shall continue to enjoy his presence in our midst and he will remain as Discipline Leader in Mathematics for the foreseeable future. All these latest successes are indication and recognition of Mick's major contributions to Mathematical Biology. Congratulations Mick!!!

Graeme Wake has been appointed to an OCCAM Fellowship at the University of Oxford for the summer period of 2009. OCCAM stands for

the Oxford Centre for Collaborative Applied Mathematics which endeavours 'to gain quantitative insights into some of the 21st Century's most pressing problems'. OCCAM is a $25m collaboration between Oxford University and King Abdullah University of Science and Technology (KAUST). Congratulations Graeme!

After winning a prize for the best poster at the 15th Biennial Conference of the European Consortium for Mathematics in Industry in London 30th June to 4th July 2008 (see last newsletter) and presenting a talk, Winston Sweatman spent two weeks in Scotland. He spent one week with Professor Douglas Heggie at University of Edinburgh working on four-body scattering, and one week with Professor Bonnie Steves at Glasgow Caledonian University working on symmetrical four-body problems.

In October, Mick Roberts visited Roskilde University in Denmark to explore collaborative research, and then attended the DIMACS Working Group on Spatio-temporal and Network Modeling of Diseases at Tubingen where he presented the paper "Vaccination against seasonal influenza in New Zealand".

Jeff Hunter continues to be active with his Emeritus status as a part-time Adjunct Professor at AUT. As a member of the International Organising Committee (IOC) of the International Workshop on Matrices and Statistics (IWMS) he presented a paper at the latest IWMS Workshop in Tomar, Portugal in July (coupled with an eight week trip overseas that included Thailand, France, Spain, Portugal and England). He has been appointed as Chair of the IOC for the Workshop to be held in Shanghai in 2010, as well as being on the IOC for the next meeting to be held in Smolenice, Slovakia in June 2009.

Congratulations to Amanda Elvin and Ratneesh Suri who both passed their maths PhD oral exams.

Congratulations to Paul Cowpertwait, Shaun Cooper and Frederick Lam who were nominated to the ASA 2008 Lecturer of the Year (LOTY) award.

Congratulations to Tanya and Richard Evans on the birth of their son Michael Cyril Evans on Saturday, 27 September.

Our last news column (NZMS Newsletter 103 p11) attracted some e-mail exchanges over the question: who among NZMS members has the most grandchildren? Graeme Wake currently has 5 but John Harper pointed out that Don Nield has 6. Later, John Butcher joined the list with 6 grandchildren as well. On this John wrote: "I little thought when I first met Don Nield in 1941 that one day each of us would have 6 grandchildren. Even less did I suspect that this would become a matter of wider interest."

The Centre for Mathematics in Industry has a new website: `http://www.mathsinindustry.co.nz` which went live in November.

Visitors: Teeranush Suebcharoen, an exchange PhD student from Mahidol University in Bangkok who worked with Graeme Wake and Tasos Tsoularis for one year, has left us in September.

SEMINARS

Graeme Hocking (Murdoch University, Australia), "Withdrawal from a two-layer fluid in a porous medium - super-critical flows"

Beatrix Jones (IIMS), "Statistical analysis for parentage analysis: accommodating diverse mating systems"

Shixiao Wang (University of Auckland), "Vortex stability and vortex breakdown"

Marti Anderson (University of Auckland), "Novel statistical methods in ecological monitoring and assessment of human impacts for community data"

Alona Ben-Tal

UNIVERSITY OF OTAGO

DEPARTMENT OF MATHEMATICS AND STATISTICS

Combined Physics and Mathematics Honours student, Andrew Haines, has won one of three prestigious Woolf Fisher scholarships awarded to New Zealanders and will study at Cambridge from October 2009. These scholarships are awarded to 'all rounders' — people interested in other things like sports as well as their field of study. The Woolf Fisher scholarship will support his PhD studies on investigating the assembly of metamaterials to the value of $100,000 a year as well as return flights back to his home town of Mosgiel each year. Congratulations Andrew!

After completing his PhD here at the end of January 2007, we are pleased to welcome back Dr Jonathan Bidwell as a Postdoctoral Fellow. Jonni will be working on the application of group theory to the field of cryptography with John Curran and Dennis McCaughan.

Continues after centerfold ...

Mathematicians at Auckland 125 Years On

Twenty-eight mathematicians made an unusual pilgrimage to the Grafton Cemetery recently in memory of the University's first Professor of Mathematics, George Francis Walker, who was appointed to the Chair when the College was established 100 years ago. He drowned in the Waitemata Harbour before his first lecture and was buried here. His name appears on the Wall of Remembrance behind the group. (Photo taken 1983).

In 1883 the third College of the University of New Zealand (and the first in the North Island) was opened in Auckland. This didn't mark the beginning of University level education in Auckland, that being traced back to 1872 when the Auckland College and Grammar School was affiliated to the University of New Zealand. Indeed, the first woman to graduate with a BA degree in the British Empire, Kate Edger, received her tertiary education through this facility in the 1870s.

The initial appointments to the academic staff were four professors, in English & Classics, Mathematics & Mathematical Physics, Chemistry & Physics, and Natural Science. Unfortunately the first professor of Mathematics, George Francis Walker, died tragically in a boating accident in the Waitemata Harbour soon after his arrival in Auckland so he never gave a lecture. His boating companion, the newly arrived professor of Classics and English, barely survived. So the first Mathematics lecture at the newly opened University College was given by the professor of Natural Science, APW Thomas.

Actually Walker's successor, William Steadman Aldis, had an untimely end to his appointment too: he was dismissed because he complained about having his parking place usurped. Well, that was the trigger but even the official reason for his dismissal was about as spurious. If you are interested in a discussion of the circumstances surrounding Aldis's dismissal then you would do well to read the chapter devoted to it in Keith Sinclair's A History of the University of Auckland, published in 1983. For more on the early professors of Mathematics, as well as a brief summary of the circumstances surrounding Aldis's dismissal, read Don Nield's Centrefold article Professors of Mathematics at Auckland University College: the Missionary, the Businessman, the Story-teller and the Salesman, also published in 1983 and available at `http://ifs.massey.ac.nz/outreach/mathnews/centrefolds/27/Apr1983.shtml`. Don also wrote a longer article about the history of Mathematics at Auckland in his University Mathematics at Auckland: a historical essay, Mathematical Chronicle, 12(1983), 1-33. In the latter Don briefly outlines the subject content of the courses taken by a Mathematics major, with elementary differential and integral calculus making an appearance in honours classes following the bachelors degree. The next professor had a longer tenure: Hugh William Segar was professor of Mathematics at Auckland and remained in the post until he retired in 1934.

Back to Walker. Following his death, Professor Walker was buried in the Auckland Cemetery in Grafton Gully. There his body lay in peace for over 80 years until, in the early days of the ongoing

motorway expansion in Auckland, it was deemed that Grafton Gully was needed as the route for one branch. Many graves had to be disturbed and those whose graves were had their names inscribed on a Wall of Remembrance on the edge of the cemetery near the western end of Grafton Bridge. Professor Walker's name appears on the wall.

It seemed fitting for as many members, and former members, of the then Department of Mathematics and Statistics to assemble in front of the Wall for a photograph on the 100th anniversary of Professor Walker's death. The first accompanying photograph was taken on that occasion. It did not include all living members or former members of the Department as many were unavailable for a range of reasons.

In 2008, now the 125th anniversary of the death of Professor Walker (and, of course, of the founding of the University), as many members and former members of what was once again the Department of Mathematics returned for more photographs. The second photograph shows 18 of the 28 in the original photograph, including two (Gordon Hookings and Marin Segedin) in their late 80s. Of the original group one, Professor Cecil Segedin, had died while most of the other nine who were absent had retired or resigned and either moved out of Auckland or ill health prevented their attendance. In addition all other available members of the Department also attended and appear in the third photograph. How many of us will make it in 2033?

David Gauld

(a)

(b)

(a) From 1983 to 2008. Back row: Dr Paul Hafner, Emeritus Professor George Seber, Dr David Smith, Mr Roy Swenson, Dr Ganesh Dixit, Dr Garry Tee, retired Associate-Professor Donald Nield, Professor David Gauld, Mr Marin Segedin, Emeritus Professor Alastair Scott. Front row: Emeritus Professor Jeffrey Hunter, retired Associate-Professor Mervyn Rosser, Emeritus Professor John Butcher (front), Dr Joel Schiff, Mr Christopher King (front), Professor David Ryan, Associate-Professor Bruce Calvert, retired Associate-Professor Gordon Hookings. Photo: Godfrey Boehnke. (b) Some current and former members of the Mathematics (and Statistics) Department, 2008 Back row: Dr Alastair McNaughton, Mr Roy Swenson, Dr Robert Chan, Emeritus Professor John Butcher, retired Associate-Professor Mervyn Rosser, Emeritus Professor George Seber, Emeritus Professor Jeffrey Hunter, Dr David Smith, Professor David Gauld, Dr Paul Hafner, Dr Ganesh Dixit, Dr Philip Sharp, Dr Allison Heard, Dr Joel Schiff, Dr Garry Tee, Professor David Ryan, retired Associate-Professor Donald Nield, Mr Marin Segedin, Associate-Professor Bruce Calvert, retired Associate-Professor Gordon Hookings, Dr Tom ter Elst, Ms Sheena Parnell, Dr Stephen Taylor, Ms Moira Statham, Professor Roderick Gover, Dr Judith Paterson, Mr John Walls, Dr Maxine Pfannkuch, Professor Eamonn O'Brien, Emeritus Professor Alastair Scott. Front row: Dr Sina Greenwood, Ms Wendy Stratton, Associate-Professor Michael Thomas, Dr Shixiao Wang, Dr Michael Meylan, Mr Gregory Oates, Dr Shayne Waldron, Ms Helen McKenzie, Associate-Professor Jianbei An, Mr Christopher King. Photo: Godfrey Boehnke

local news continued...

In August Robert Aldred attended a special conference in honour of Carsten Thomassen's 60th birthday. The meeting was held at Sandbjerg, near Snderborg in Denmark and was attended by many of the world's leading Graph Theorists. The talks were of an extremely high standard and the opportunity to interact with so many leaders was very welcome indeed.

Richard Barker had a flying visit for just over a week to Patuxent Wildlife Research Center in November where he and Bill Link were putting the finishing touches on the manuscript for their book on Bayesian inference, due to come out some time next year.

In August, John Clark attended the International Conference on Rings and Modules in Ankara, Turkey, and then the International Conference on Modules dedicated to Patrick Smith in Lisbon, Portugal in September.

In mid September Jörg Frauendiener participated in the conference "Beyond Einstein: Historical Perspectives on Geometry, Gravitation, and Cosmology in the Twentieth Century". As the title suggests this was a conference at the interface between modern developments in gravitational physics and the historic roots of Einstein's theory of gravitation. In several talks the formation of the ideas of special and general relativity, in particular the roles played by Poincare, Cartan, Hilbert, Weyl, Grossmann, Minkowski and other well-known mathematicians was discussed. Other contributions looked into early applications of the theory such as the Lense-Thirring effect which describes the precession of a spinning top near a rotating mass such as the Earth. A very difficult concept has been that of a black hole, a region in the universe, which cannot communicate with the rest of the universe, and the peculiar geometric structure of the 'horizon'. Jörg presented a talk on the formation of the concept of 'conformal infinity'. This is an idea, which grew out of the need to characterize wave-like solutions of the Einstein equations and which is today a well established mathematical idea in conformal geometry.

Taking the conference as an excuse to get to Europe, Jörg visited other places as well. The Albert-Einstein-Institute in Potsdam, Germany is one of the main centres for gravitational physics and an attraction for every researcher in that area. Jörg spent one very enlightening week there, gave a seminar on "Relativistic Elasticity" and took the opportunity to work on a common project with Christian Klein from Dijon, France, who happened to be visiting there as well. After Potsdam Jörg went north to Oslo, Norway, where he visited the Centre of Mathematics for Applications. Finally, the tour took him to Budapest, Hungary where he has a long-time collaboration with Laszlo Szabados of the Research Institute of Physics. He spent another week there, made "Some remarks on the covariant phase-space" in a seminar and generally had a good time.

Mihály Kovács has participated in three conferences in recent months, all on numerical matters for stochastic partial differential equations. They were the GLADE 2008 conference in Auckland, the FoCM'08 conference in Hong Kong and the Encounters between continuous and discrete mathematics workshop at the Heinrich-Fabri Institut, Blaubeduren in Germany. Misi's mother, Katalin Hangos, visited the Department in October and gave a seminar on Mathematical Modeling and Parameter Estimating of Ionic Channels in GBRH Neurons. Seems like maths is in the genes!

Visitors

Professor Mike Plummer of Vanderbilt University visited from early October until late November and worked intensively with Robert Aldred on a variety of problems in Matching Theory. The visit was very productive and, while Mike has officially retired from teaching, there are new projects lining up that will keep this collaboration going for some time yet.

Kevin O'Meara was on the staff at the University of Canterbury but is now semi-retired living in Brisbane. He is originally from Invercargill and was a student in this Department from 1964-66. Kevin visited in October and worked with John Clark on a linear algebra book.

After the NZIMA conference on conformal geometry in Auckland, Prof. George Sparling from the University of Pittsburgh headed south to visit Otago. Unfortunately, a bug that circulated already in Auckland followed him and he came down with a bad cold. However, this did not stop him from collaborating with Jörg Frauendiener on his ideas in twistor theory and asymptotic solutions of Einstein's equations. He also gave a seminar on "The Legacy of Roy Kerr".

Byron Morgan, Professor of Statistics at the University of Kent, Canterbury, in the UK visited the Department in late October. He is one of the Directors of the National Centre of Statistical College in the UK. Byron was in NZ mainly to be part of a review of the Statistics group at Wellington, but we invited him to give a seminar in Dunedin while he was in the country.

Helen MacGillivray also visited in October. She met with John Harraway on the ICOTS8 conference, gave a talk to the Otago Maths Teachers Association and was recorded for a DVD on Statistics education for the middle school that will be used throughout Australasia.

Grit Classen is from Aachen, Germany. Grit is a PhD student from the University there who is visiting for six months and is working on matching extensions with Robert Aldred. Grit has taken the opportunity to travel around both the North and South Islands while in NZ.

Andreas King, is visiting for six months from the University of Tũbingen. He has followed his supervisor, Jörg Frauendiener, to NZ to work on his PhD. As well as studying Andreas has been enjoying the scenery around Milford and Te Anau.

SEMINARS

Colin Fox (Physics Department), "Sample-Based Impedance Imaging"

Chris Fonnesbeck "Bayesian hierarchical model for evaluating the risk of vessel strikes on north Atlantic right whales in the southeastern United States"

Mihly Kovcs "Error analysis of the finite element method for the stochastic heat equation"

Roger Littlejohn (AgResearch, Invermay Agricultural Centre), "Identifying calving dates in farmed red deer hinds monitored using GPS collars"

George Sparling (Department of Mathematics and Statistics, University of Pittsburgh), "The legacy of Roy Kerr"

Laimonis Kavalieris "Model Selection and Time Series Asymptotics"

Gareth Vaughan "Complex fluid flows without grids"

Jim Cotter (School of Physical Education), "Dehydrating athletes: Good, bad, or both? "

Peter Fenton "Another Look at A.C. Aitken"

Dennis McCaughan "Primes for the Times"

Statistics 4th Year Presentations (4)

Dorothee Hodapp "Estimation of Abundance and Occupancy of Bottlenose Dolphins using Bayesian Inference"

Ella Iosua "Maori Population Stratification in the Genetic Study of Gout"

Philippa Smale "Yellow Eyed Penguin Population Dynamics"

Jimmy Zeng "Estimating Luminescence Lifetime"

Chris Fonnesbeck "Battle of the Bayes"

Andrew Haines "Doing the Bosenova"

Peter Green "An Introduction to Temperature Reconstruction"

Luke Bennetts "Wave scattering by ice-sheets of varying thickness and a non-zero draught"

Darryl Mackenzie (Proteus Wildlife Research Consultants), "New Dog, Old Tricks"

Kyle Wright "Formalism of Quantum Mechanics"

Katalin M. Hangos (Hungarian Academy of Sciences, Budapest, Hungary), "Mathematical Modeling and Parameter Estimating of Ionic Channels in GBRH Neurons"

Michael Plummer (Department of Mathematics, Vanderbilt University), "Recent Progress in Matching Extension"

Byron Morgan (University of Kent, Canterbury, UK), "Recent Developments in Statistical Ecology"

Thomas Lumley (University of Washington), "What does the Wilcoxon test mean?"

Lenette Grant

UNIVERSITY OF WAIKATO

DEPARTMENT OF MATHEMATICS

We extend a warm welcome to Nick Cavenagh from Monash University and Yuri Litvinenko from the University of New Hampshire. They joined the department in November.

Tim Stokes will shortly be going on his annual pilgrimage to Australia where he will continue his research collaborations. Tim had Graeme Hocking from Murdoch University as a visitor at the end of October for a week. Tim's term as Chairperson of Department is officially meant to end at the end of the year. However, we have hopes that his term will be extended.

Sean Oughton has been away on study leave in the US. He is expected back in Hamilton shortly. Kevin Broughan, Ernie Kalnins, and Rob Akscyn (a PhD student from Computer Science) will be

attending the 7th joint Australian-New Zealand Mathematics Convention.

Stephen Joe spent two weeks in November visiting his former student, Dr Frances Kuo, at the University of New South Wales. Stephen stepped down as Acting Dean of the School of Computing and Mathematical Sciences at the end of September.

SEMINARS

E. Kalnins "Models of quadratic quantum algebras and their relation to classical superintegrable systems"

G. Hocking (Murdoch University), "A steady flow with unsteady forcing"

Stephen Joe

VICTORIA UNIVERSITY OF WELLINGTON

SCHOOL OF MATHEMATICS, STATISTICS AND COMPUTER SCIENCE, *Te Kura Tatau*

This will be the last news item to appear in the NZMS newsletter from the School of Mathematics, Statistics and Computer Science at VUW! The reason is that from 1 January 2009, MSCS is splitting into two new Schools: Mathematics, Statistics and Operations Research (MSOR), and Engineering and Computer Science. So in the next NZMS newsletter, there should be the first entry from MSOR. Megan Clark will be the inaugural Head of School, with Geoff Whittle the Deputy Head and Matt Visser chairing the Research Committee. Thanks to all of them for taking on those roles.

Mathematics

Frank Kane (HoD Maths at Onslow College) has been awarded a RSNZ Science, Technology and Mathematics Teaching Fellowship to spend a year, commencing February 2009, based at Victoria and sister research institutes in the Wellington region investigating ways in which calculus and algebra are used in modelling and applied mathematics.

In October the Maths group hosted Stefan van Zwam from the Eindhoven Technical University, who gave a talk on cross-ratios and matroids. During November and December 2008, Manfred Husty (University of Innsbruck) and Jon Selig (London South Bank University) are visiting Peter Donelan and will be presenting talks in the Lie Groups: Robotics, Vision and Control special session at the ANZ Mathematics Convention at the University of Canterbury in December.

PhD student Adam Day has been awarded the prize for the best student paper for his paper "On Process Complexity", in the upcoming CATS (Computing Australasian Theory Symposium) 2009. Adam is studying towards a PhD in Algorithmic Information Theory, under the supervision of Rod Downey and Noam Greenberg. The CATS 2009 conference will be held in Wellington in January 2009; Rod Downey is one of the co-chairs on the programme committee. For more information, see the symposium website: `http://velorum.ballarat.edu.au/ pmanyem/CATS09/`.

Several postgraduate students from our mathematics and statistics groups attended and presented talks at the NZ Mathematics and Statistics Postgraduate Conference 2008 in Whitianga (November 18-21). From mathematics we had Gabriel Abreu, Petarpa Boonserm, Celine Cattoen, Deborah Crook and Jozef Skakala, while from statistics there was Cherif Aidara, Giorgi Kvizhinadze and Haizhen Wu. Also, Ting Wang from Massey (Palmerston North) presented material that involved joint work with David Harte and David Vere-Jones. Unfortunately Nicole Walters, another of our maths postgrad students, had to withdraw from the conference at short notice.

Statistics and Operations Research

The Stats and OR group hosted Professor Walter Zucchini as the Shayle Searle Visiting Fellow in Statistics in September 2008. Professor Zucchini, from the University of Göettingen, is well-known for his work on hidden Markov models, including his co-authorship of "Hidden Markov and Other Models for Discrete-Valued Time Series" (I.L. MacDonald and W. Zucchini, 1997. London: Chapman and Hall). Walter has worked in many fields of application of statistics, including meteorology, ecology, finance, animal behaviour, physiology and forestry. While in Wellington, Walter gave three talks: two seminars at VUW and an invited talk (on "Latent-state models with feedback - an extension of hidden Markov models") at the Hidden Markov Models Workshop held at the Royal Society rooms on Wednesday 3 September (see `http://nzsa.rsnz.org/HMM3/index.htm`). The Workshop was free for participants and was jointly sponsored by the NZ Statistical Association, Victoria University of Wellington and Statistics Research Associates. David Vere-Jones was the primary organiser of the workshop, which aimed to provide a

follow-up meeting to the NZIMA-funded 2005 programme on "Hidden Markov Models and Complex Systems", also coordinated by DVJ.

Estate Khmaladze had a visit from Professor Arnold Janssen (University of Duesseldorf) for three weeks in September and October. Professor Janssen is a specialist on the theory of empirical processes and goodness of fit methods and his counterintuitive result on the power of the Kolmogorov-Smirnov test ("no weighted K-S statistic can have good power against many alternatives") is now a classical result in the field. While visiting VUW, Arnold worked intensively with Estate, interacted with several postgraduate students and also gave a seminar.

Andres Devoldere, one of Estate's MSc students, who took a break from study after completing the coursework part of his degree, has won a Bank of New Zealand Chevron achievement award. Andres plans to return to VUW to complete his Masters in 2009.

Statistics and Operations Research had a research review in October 2008, which required all academics to devote quite a bit of time to yet more administrative tasks, in what has seemed a particularly busy year from an administrative point of view. However, one immediate upside of the review was that Professor Byron Morgan (University of Kent) was part of the review panel, and while he was here he also gave two interesting seminars.

John Haywood visited the UK during September 2008 to present some work at the Royal Statistical Society Conference 2008, held at the University of Nottingham. While in the UK, John also spent some time working with Granville Tunnicliffe Wilson at Lancaster University. Back in New Zealand John was busy recently, editing the Proceedings for the 43rd Operational Research Society of New Zealand Conference (ORSNZ'08), which was held at VUW on 24 and 25 November. Mark Johnston chaired the organizing committee, all of who were from the School: Stefanka Chukova and John Haywood made up the team, with sage advice from Tony Vignaux and administrative support from Ginny Whatarau. Generous sponsorship was received from ILOG Australia, DY Strategy Consulting, Orbit Systems, Hoare Research Software, Paragon Decision Technology, The Optima Corporation and Victoria University of Wellington.

Several academic staff and current or recently departed postgraduate students from the School gave talks or chaired sessions at ORSNZ'08: Richard Arnold, Chris Ball, Stefanka Chukova, John Haywood, Yuichi Hirose, Mark Johnston, Richard Marshall, Sarah Marshall, Nokuthaba Sibanda and Dong Wang. The keynote speakers were Craig MacLeod (Orbit Systems, Wellington) and Professor Anita Schoebel (University of Göettingen). For further details, please see the conference website: `http://www.orsnz.org.nz/conf/`. We confirmed that organisation of an Operations Research conference involves a lot of Operations Research: forecasting, break-even analysis, the old newspaper-vendor problem (with conference proceedings), project management, sensitivity analysis, and of course constraints, costs, uncertainty and risk. A great payoff though, when it all comes together.

SEMINARS

John Harper (Emeritus Professor, VUW), "Electrophoresis of gas bubbles"

David Pearce (VUW), "Computing Tutte Polynomials"

Guilherme Milhano (Lisbon), "Treats or Tricks: The role of stochastic analogues in high-energy Quantum Chromodynamics"

Nedialko Dimitrov (UT Austin), "Competitive Weighted Matching in Transversal Matroids"

Thomas Roehr (VUW), "Control of a hierarchical team of robots for Urban Search and Rescue"

David Park (GRC), "Introducing New Zealand's Geospatial Research Centre"

Walter Zucchini (University of Göttingen and 2008 Shayle Searle Visiting Fellow in Statistics at VUW), "Two applications of statistics in biology"

Walter Zucchini (University of Gttingen and 2008 Shayle Searle Visiting Fellow in Statistics at VUW), "Hidden Markov models for circular-valued time series"

Estate Khmaladze, Giorgi Kvizhinadze, Haizhen Wu (VUW), "Analysis of diversity of responses in questionnaires and similar objects"

Arnold Janssen (University of Duesseldorf), "Boundary crossing problems and their application in statistical inference"

Moshe Haviv (The Hebrew University of Jerusalem), "The Shapley Value: A tutorial"

Haizhen Wu (VUW), "Introduction to large deviation theory"

Giorgi Kvizhinadze (VUW), "Contiguity, Hellinger distance"

BD Kim (VUW), "Iwasawa theory of elliptic curves for supersingular primes"

Michael Uhlmann (ANU Canberra), "Quantum fluctuations in trapped time-dependent Bose-Einstein condensates"

Stefan van Zwam (Eindhoven University of Technology), "Cross-ratios in partial fields"

Byron Morgan (University of Kent, UK) "Recent Developments in Statistical Ecology"

Byron Morgan (University of Kent, UK) "New Aspects of Parameter Redundancy"

Thomas Suesse (VUW), "Estimation of the Common Odds Ratio for Stratified Multiple Response Data"

Colin McNurtie, Peter Helms (University of Canterbury), "BlueFern: Making HPC Easy, Simple and Quick"

Geoff Bascand (NZ Government Statistician), "Measuring New Zealand's Progress: An Integrated Approach to Official Statistics"

Thomas Lumley (University of Washington, Seattle), "Robustness of efficiency in semiparametric models for incomplete data"

John Haywood

WELLINGTON STATISTICS GROUP

The Wellington Statistics Group (WSG), a local group of the New Zealand Statistical Association (NZSA), continues to meet regularly. The most important news item is that Leigh Roberts has recently taken over from Alistair Gray as the WSG treasurer/refreshments organiser. Thanks to Leigh for taking that role on and a huge thanks to Alistair, who did the job since the group's inception in August 2001. Alistair is definitely due for a well-earned rest.

The group recently heard from Jim Ridgway, (University of Durham, UK), whose talk on 20 October 2008 entitled "The OECD Global Project Measuring the Progress of Societies, Thoughts and Actions", stimulated a lively discussion.

Further details (abstracts, etc) of this and all previous talks can be found on the NZSA Local Groups web page `http://nzsa.rsnz.org/local_groups.shtml`. This web page also contains contact details for WSG, names of sponsors, and details of forthcoming talks. In addition, a link can be found there so that people can add or delete their names from the mailing list. If anybody is visiting Wellington at a time coinciding with a talk, then you are most welcome to attend. No registration is required. We are also keen to receive offers of talks from people who have something they would like to present. Many individuals work in isolation from other statisticians and often have little opportunity to discuss their work with others. WSG aims to provide a forum for such people too.

Finally, we are grateful to all the WSG sponsors: Victoria University of Wellington, Statistics New Zealand, the Ministry of Social Development and Statistics Research Associates Ltd.

John Haywood

Derek Frank Lawden

Derek Lawden was born in Birmingham, UK, on 15th September 1919 and died in Warwick, UK, on 15th February 2008. He attended King Edward VI Grammar School, Aston and won a scholarship to Cambridge to study Mathematics. He graduated in 1947 as a Wrangler in the Tripos examinations. He served as a captain in the Royal Artillery from 1939 until 1946, for a time being in charge of coast artillery radar at Gibraltar. After leaving the army he was appointed a lecturer in mathematics at the Royal Military College of Science, researching in control systems. Later, he moved to the College of Advanced Technology Birmingham, where he began work on the theory of optimal rocket trajectories.

In 1956 he was appointed Professor of Mathematics at the University Canterbury, New Zealand. At that time the department had a total staff of just five, including one chair. Appointment to this chair automatically meant being Head of Mathematics, including pure and applied mathematics, and statistics.

Derek's arrival had an immediate and stimulating effect on the department, through his energy and his refreshing ideas on teaching and research. He reformed and modernized the prescriptions of most of the courses. He was keen to foster a commitment to research and was already strongly involved himself, having published several papers on the optimization of rocket trajectories, particularly in applications to interplanetary travel. He made significant contributions in this field, which had become the subject of intense research in the United States, that country having already committed itself to sending a man to the moon. This resulted in appointments as a consultant to such companies as Boeing and Lockheed, which led to several visits to the USA. These contacts were eventually terminated because of his opposition to the war in Vietnam. All this work culminated in a text-book, 'Optimal Trajectories for Space Navigation' published in 1963.

The quality of his research led to several high awards: the Sc.D. degree by Cambridge University (1962), a Fellowship of the Royal Society of New Zealand (1962), the Society's Hector Medal (1964) and the Mechanics and Control of Flight Award of the American Institute of Aeronautics and Astronautics (1967). He was unable to receive the last of these in person, his visa having been cancelled by the US government.

Derek was certainly inclined towards applied mathematics, rather than to the more abstract topics of pure mathematics. This shows in his choice of subject matter for his books. He believed in the importance of establishing a sound, coherent, mathematical framework for any applied topic, based on a careful interpretation of known observational facts. However, he was very ready to make use of advanced results from pure mathematics if need be, such as in the field of differential equations.

Socially, Derek was a witty, entertaining and provocative conversationalist and public speaker, often expressing an unconventional viewpoint. For example, early in life he espoused the views of the British Interplanetary Society, at a time when these were frequently derided, and he became a member of the New Zealand Rationalist Association. He enjoyed playing bridge, and his founding of the University bridge club gave a real lift to the social life of the university.

In his eleven years in New Zealand he contributed much, in various ways. When he announced that he would be returning to England with his family in 1967, the news was received with a feeling of real regret by the mathematical community throughout New Zealand and by many others, especially in Christchurch. He made it clear that he had enjoyed his time in New Zealand, and that it was for family reasons that he was returning to England.

He took up the position of Professor of Mathematical Physics at the University of Aston in Birmingham and was appointed Head of Mathematics in 1977. He retired from this post in 1983 and, after a short spell as a visiting professor at the University of Natal in South Africa, moved to the country, where he wrote a series of books on topics from mathematical physics, several of which have been reprinted as

Dover editions.

Apart from mathematics, he had a life-long interest in psychical research, believing that consciousness was the missing link in our scientific understanding of the universe. He had a strong moral sense which, in his early life, drew him towards left-wing idealism. However, he eventually became deeply disillusioned with it because of its toxic practical effects, particularly with what he regarded as the harmful effect of egalitarianism on standards in education. His views on this were influenced by his gratitude for his grammar school education, which he considered had given him his chance in life. Although his views changed, he always expressed them with force and clarity, and scorned the obscurantist, opaque language used in modern academia.

He leaves three sons and a widow.

Michael Lawden and Robert Long

FEATURES

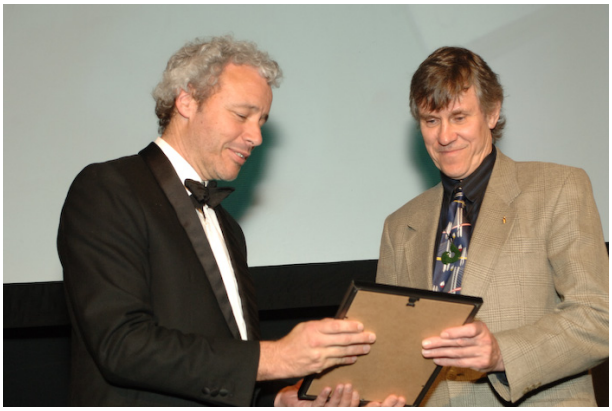
AITKEN PRIZE 2008

The Aitken Prize for best student talk at the Australia - New Zealand Mathematics Colloquium was awarded to Mareike Fischer of the University of Canterbury, for her talk entitled "Curious properties of Maximum Parsimony in estimating evolutionary trees and ancestral sequence states". She receives a prize of $500. Two speakers were highly commended, Scott Graybill of the University of Canterbury for his talk, "The countercurrent mechanism", and Emily Harvey of the University of Auckland for her talk, "Understanding complicated oscillations in intracellular calcium dynamics".

Mareike Fischer (left) and Scott Graybill.

NZMS RESEARCH AWARD 2008

The NZMS Research Award for 2008 is awarded to Professor Mike Hendy of Massey University for his "innovative mathematical approach to molecular ecology and evolution which has transformed the field. His seminal work on the Hadamard transform — used to separate out pertinent signals in evolutionary data — is now an integral part of phylogenetic software internationally and has contributed to the solution of several fundamental problems".



Robert McLachlan (left) presenting Mike Hendy with the NZMS Research Award.

NZMS EARLY CAREER AWARD 2008

The NZMS Early Career Award for 2008 is awarded to Dr Barbara Holland of Massey University for her "groundbreaking work in interpreting information of historical and biological importance in comparisons of genetic sequence data, and for her pioneering development of phylogenetic networks that succeeded where simple optimisation models failed in identifying conflicts and in unmasking the more interesting biological evidence."

CONFERENCES

Report of the ANZMC2008: Australia-New Zealand Mathematics Convention, Christchurch, 2008

The population of mathematicians on the University of Canterbury campus swelled to over 300 in the second week of December (8-12th) as the Mathematics and Statistics Department hosted the joint annual meetings of the Australian and New Zealand Mathematical Societies. Australians slightly outnumbered New Zealanders (118 to 115), and substantial numbers came from Fiji, North America, Europe (including Poland, Russia and Slovakia) and elsewhere. This was the 7th such joint meeting of the Australian and New Zealand Mathematical Societies.

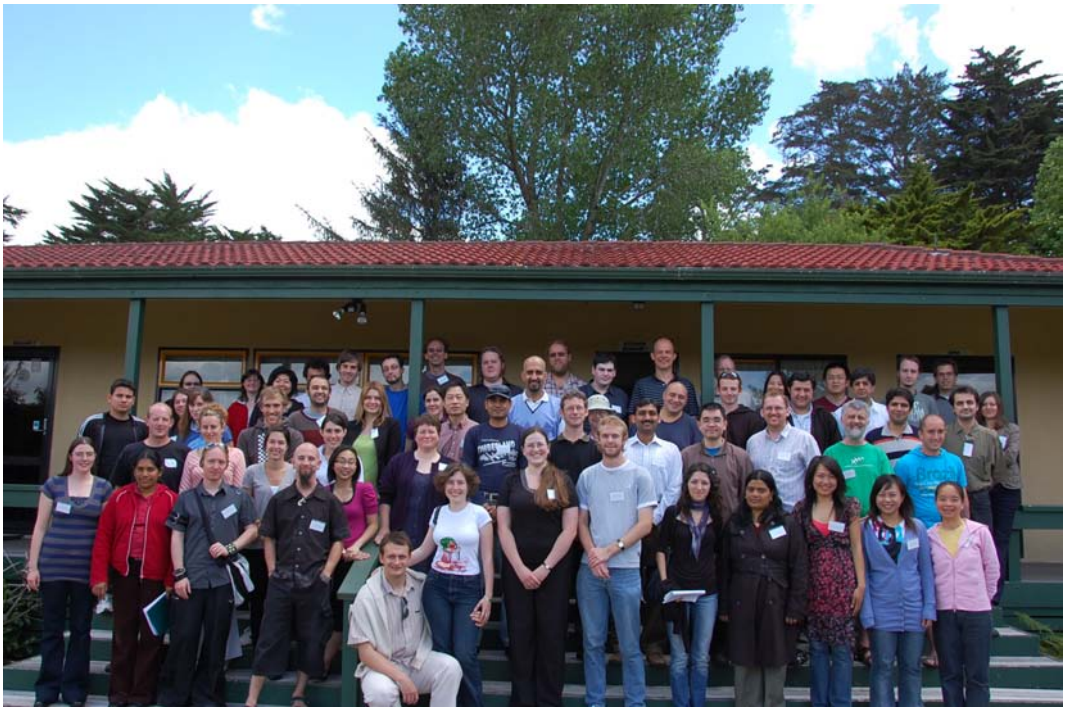
With 303 delegates, this was New Zealand's largest ever meeting of mathematicians (the joint AMS-NZMS meeting last year had 299). There were 10 plenary invited speakers of "international superstar" status: Carl de Boor (Wisconsin-Madison), Jonathan Borwein (Newcastle and Dalhousie — NZIMA Distinguished Lecturer), Vaughan Jones (Berkeley — AustMS Distinguished Lecturer), Gregory Lawler (Chicago), Charles Leedham-Green (Queen Mary, London), John Morgan (Colombia), Karen Parshall (Virginia), Cheryl Praeger (West Australia), James Sneyd (Auckland-ANZIAM Distinguished Lecturer), and Angelika Steger (ETH Zurich). The programme also featured 16 themed special sessions: Algorithmics, Applied Dynamical Systems in Engineering and the Physical Sciences, Approximation and Applications, Biological Modelling, Ergodic Theory and Dynamical Systems, Geometry and Analysis, Group Actions and Representation Theory, Harmonic Analysis and Related Topics, History of Mathematics, Lie Groups - Robotics, Vision and Control, Mathematics of Evolution and Ecology, N-body Simulations in Astronomy and Astrophysics, Nonlinear Optimization and Applications, Number Theory, Partial Differential Equations and University Mathematics Education, Teaching and Learning. These attracted scores of high quality speakers from around the world.

As well as the excellent plenary addresses, there were many other highlights of the conference. Two prizes were awarded for the best student talks. These were the NZMS Aitken prize awarded to Mareike Fischer (University of Canterbury), with two highly commended results for Emily Harvey (University of Auckland), and Scott Graybill (University of Canterbury), and the AustMS BH Neumann prize awarded to Nicole Kleinstreuer (University of Canterbury) with honourable mentions to Parinya Sa Ngiamsunthorn (University of Sydney), Michael Pauley (University of Western Australia) and Raymond Vozzo (University of Adelaide). A book display from Springer-Verlag was stationed in the central lecture block foyer throughout much of the week. A Welcome Event on Sunday evening provided a great opportunity for conference attendees to meet and talk with international colleagues. This was followed by another reception event on Monday evening sponsored by NZIMA. These receptions were enjoyed by all. Wednesday afternoon was kept free of presentations and many took the opportunity to head out on buses to various activities around Christchurch.

The Convention was organised by Rick Beatson, Rua Murray and a hardworking committee: Douglas Bridges, Qui Bui, Hannes Diener, Ben Martin, Clemency Montelle and Phil Wilson. Paul Brouwers also put in a great effort with IT and web support. Our local postgraduate students provided excellent support at the registration desk and splendid hospitality toward the other student delegates. The UC conference office provided registration and financial processing services; we particularly thank Anna Burns for her reliability and flexibility as we put the meeting together. We would also like to thank Stephen Joe and Peter Donelan for their help and advice from previous New Zealand Colloquia and Elizabeth Billington who was an excellent AustMS liaison. We would also like to extend thanks to the organisers of all the special sessions. Finally, we gratefully acknowledge the very significant financial sponsorship from the Mathematics and Statistics Department at the University of Canterbury, the AustMS, NZIMA and the NZMS.

Rua Murray and Rachael Tappenden

NZMASP Conference, Whitiange, November 2008



This year, we built on the successes of the Queenstown-held New Zealand Mathematics and Statistics Postgraduate Conference 2007 and the South Island Mathematics and Statistics Postgraduate Conference of 2006. This meeting, like the previous years', included Honours, Masters and Doctoral students who are affiliated with the Universities of New Zealand. This year there were 63 Mathematics and Statistics postgraduate students attending. They traveled from all over New Zealand from the major New Zealand Universities to Whitianga on the Coromandel Peninsula for this three day meeting. The talks at the meeting were diverse, ranging in topic from Representation theory to Queueing theory, from Phylogenetics to Topology. The quality of presentations was high with all students taking up the challenge of explaining their work to a more diverse audience than other conferences.

Once again, the University of Canterbury ruled the awards! Mareike Fischer's presentation titled, "Why DNA Sequences can be Perfectly Misleading" was chosen for the New Zealand Institute of Mathematics and its Applications Best Presentation Award. Peter (Johnny) Humphries' Ramanujan-inspired recreational mathematics presentation on "Nesting Polynomials in Infinite Radicals" earned him the Peoples' Choice Award sponsored by Hoare Research Software. We co-directed this years' NZMASP organisation committee which included Maarten Jordens and Haydn Cooper of Massey Albany, Beata Faller from the University of Canterbury, Dion O'Neale from Massey Palmerston North, and Lyndon Walker from the Department of Statistics at the University of Auckland. The team worked really well together for a successful conference.

Funding was given by the The University of Auckland Department of Mathematics, The University of Auckland Department of Statistics, The New Zealand Institute of Mathematics and its Applications, The New Zealand Mathematical Society, The Institute of Information and Mathematical Sciences at Massey Albany, The New Zealand Institute of Advanced Study at Massey Albany, Australian and New Zealand Industrial and Applied Mathematics, The New Zealand Statistical Association, and Hoare Research Software Ltd. The success of this year's conference indicates that it should be a fixture on the New Zealand Mathematical Conference scene. Keep on rolling on to NZMASP 2009!

Howard Cohl and Alethea Rea

One-Day Applied Mathematics Meeting Auckland, June 9th

A one-day applied mathematics meeting was held at the University of Auckland on June 9th, 2008. The meeting was one in the occasional series of meetings hosted in turn by the Universities of Auckland,

Waikato, and Massey Albany. The main aim of the meeting was to foster interaction between Applied Mathematicians, particularly those in the northern parts of NZ. The NZ branch of ANZIAM sponsored this meeting, granting $400 to be used to provide lunch for attendees. Logistical support and further financial support was provided by the Department of Mathematics at the University of Auckland.

Around 30 people registered for this event, with participants coming from the Universities of Auckland, Massey Albany, Waikato, and AUT. Most were mathematicians, but a few from other disciplines were represented too (e.g., Geography, Engineering). About half the participants were graduate students. The programme included eight talks of around 25 minutes each. The talks were generally well presented and well received.

Feedback from participants suggests the meeting was enjoyable, and achieved its aim of establishing, renewing, and strengthening contacts between Applied Mathematicians in the northern region. We would like to record our appreciation to ANZIAM (NZ) and the Department of Mathematics for making this event possible.

Vivien Kirk, Mike Meylan and Bruce Calvert

Workshop on Magnetic Confinement

On 22 September 2008 there was a one-day Workshop on Magnetic Confinement at Balliol College, Oxford, to commemorate the life and work of Professor Les Woods, a New Zealander who was a Fellow of Balliol and an Oxford professor. I was there, and heard a lot about recent work on stellarators and tokamaks, but was disappointed that there was neither confirmation nor disproof of Woods's long-held belief that the inherent instabilities of tokamaks meant that all the billions spent on their development was wasted. It would have been good to know the current status of his theory in a meeting commemorating his work! See his centrefold in Newsletter 48, April 1990, and his obituary in Newsletter 100, August 2007.

John Harper and Graeme Wake

NZMS Travel Grantee Reports

Scott Graybill (University of Canterbury)

On 29th June, I traveled to Edinburgh, Scotland to attend the European Conference on Mathematical and Theoretical Biology (ECMTB). I left Christchurch, New Zealand on a cold winter night, and after 28 hours of cramped legs, multiple airline meals and numerous movies I arrived in Heathrow to a glorious summer afternoon. After the long journey I needed some substantial food and to let off some pent-up energy.

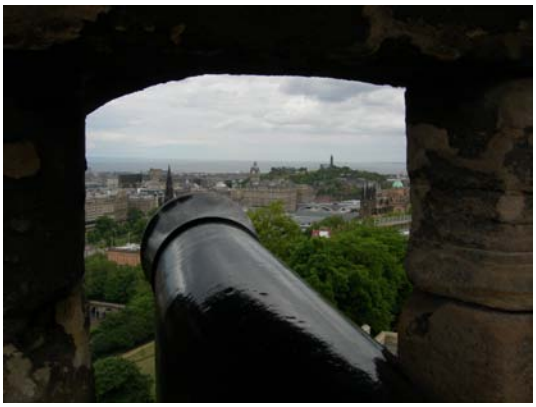
"Right", I thought to myself, "a quick jaunt across London to my friend's place in Brighton and I'll be able to relieve these effects".

One bus, two trains, a couple of missed opportunities, and 5 hours later I arrived at my mate's place and collapsed on the couch in a travel-induced stupor. Thankfully the trip to Edinburgh the following day was an extremely comfortable and scenic 5 hour train ride (with free WI-FI!).

The ECMTB is a prestigious event bringing together over 450 of the world's best mathematical modelers and theoretical biologists. There were presentations on an extremely wide range of topics including cancer, evolution and developmental biology. This conference expertly showcased the extremely wide range of biological problems into which mathematics can provide valuable insight.

Personal highlights included the plenary talks by Frank Tobin and James Sneyd and discussions on epidemiology and biofilms. The most difficult part of the event was selecting which of the nine streams of contributed talks and mini-symposia to attend. As a young researcher I highly valued the opportunity to present my research to an international audience and the highly beneficial feedback I received.

This was my first trip to the UK and it was great to get out and about to see some of Edinburgh. Memorable experiences include the 1pm gun firing at Edinburgh Castle, the conference dinner at the S table which included some delicious haggis, and having the perfect viewing spot to see the Queen ruined by her security guard's SUV moments before she arrived.



I would like to acknowledge the Society for Mathematical Biology, the European Society for Mathematical and Theoretical Biology, the New Zealand Mathematical Society, the University of Otago Renal Research Theme and the University of Canterbury Department of Mathematics and Statistics for their generous funding that enabled me to attend this conference.

Upcoming Conferences

- 4-9 January 2009, Napier Annual NZMRI/NZIMA Summer Meeting, on algorithmic information theory, computability and complexity www.mcs.vuw.ac.nz/Events/NZMRI2009/WebHome
- 27-31 January, Wollongong, NSW, Australia, MISG Workshop.
- 1-5 February, Caloundra, Queensland, ANZIAM 2009 (annual meeting of Australia & NZ Applied Mathematics) www.sci.usq.edu.au/conference/index.php/ANZIAM/2009
- 6-10 July, Sydney, Australia, First Pacific Rim Mathematical Congress www.primath.org/prima2009/
- 29 September - 2 October, Palmerston North Pi in the Sky: Extending Mathematical Horizons, Biennial Conference of the NZ Association of Mathematics Teachers (NZAMT11) www.nzamt.org.nz/nzamt11/

Minutes of the 34th Annual General Meeting

5.30pm, Thursday 11 December 2008, Room C3, University of Canterbury

Present: Robert McLachlan(chair), Winston Sweatman(secretary), John Butcher, Allison Heard, Peter Donelan, Boris Baeumer, Rua Murray, Tammy Smith, Marston Condor, Ken Pledger, David Wall, Charles Semple, Graeme Wake, Igor Boglaev, Chris Tuffley, Stephen Marsland, Rick Beatson, Graham Weir, Philip Sharp, Shaun Cooper, Steve Taylor, Tom ter Elst.

1. **Apologies**

   Apologies were received from Kevin Broughan, David Gauld and Gaven Martin.

2. **Minutes of 33rd Annual General Meeting**

   The minutes of the 33rd Annual General Meeting were accepted (motion moved Robert McLachlan, Winston Sweatman).

3. **Matters arising from the minutes**

   None.

4. **President's report**

   The President presented his report. He noted the Forder Lecturer tour – he is still awaiting a response from the LMS on future Forder Lectures. He commented that there had been 4 student travel awards during the year. Supervisors should encourage their students to apply. Similarly for money allocated for students to attend the MISG for which there were no applications. The society had supported the Colloquium and Postgraduate Mathematics and Statistics Student Conference with financial grants.

   A number of awards and honours were received by society members during the year. Members were encouraged to continue nominating strong candidates for the society's awards.

   The departing treasurer Tammy Smith and archivist John Harper were thanked as was Peter Donelan who is taking on these roles. Tammy Smith and Gaven Martin were thanked for their service on Council from which they were stepping down. The former and incoming newsletter editors, Mark McGuinness and Alex James, respectively, were also thanked.

   The President reported on progress with the Jones medal which is to be for lifetime achievement in the mathematical sciences and awarded normally biennially. This was approved by Council earlier in the day and would now pass to the NZ Statistical Association and Royal Society of New Zealand for their approval. Gaven Martin was thanked for initiating this.

   It was noted by the meeting that the NZIMA's support of mathematics is continuing.

5. **Treasurer's report**

   The treasurer presented her report. There had been a glitch during the year and financial statements from 2006 had not audited it in time due to the requirement for new things to accompany the financial reports. The society had been briefly taken off the Incorporated Societies register and lost charitable status, however, so far there had not been any ill-effect.

   The treasurer suggested that the current auditors McKenzie McPhail were replaced. Their charges have been tripled. New auditors were recommended.

   There was some discussion of financial proceedures. It was noted that the audits for 2006 and 2007 were now complete and the society was back on the incorporated societies register.

   The treasurer's report was approved by the meeting

6. **Appointment of auditors** The meeting approved the appointment of the new auditor Carrol Chan, School of Accountancy, Massey University.

7. **Membership Secretary's report and annual subscriptions** The Membership Secretary's report was accepted. The pleasing increase in membership was noted. The president proposed that ordinary membership subscriptions increase by $5 to $45 (ex. GST) with a $5 discount for early payment. Other memberships increase correspondingly. This was seconded by Rua Murray and approved by the meeting. It was noted that expenditure of the society was variable from year to year. The membership secretary John Shanks was thanked for his continuing service in this role.

8. **Election of Councillors and Incoming Vice-President**

Departing Councillors Gaven Martin completed his term as Immediate Past President. The 2nd term of office of councillor Tammy Smith ended. So they will leave Council. Rick Beatson has reached the end of his 1st term of office as councillor. Graeme Weir was co-opted onto Council during the year.

Incoming President Charles Semple (University of Canterbury) was nominated for incoming Vice-President by Rod Downey and Geoff Whittle.
He was elected unopposed by acclamation.

New Councillors There were four nominations for the three vacant council positions:
Rick Beatson (University of Canterbury) (for a second term on council) by Rua Murray and Huy-Qui Bui
Tom ter Elst (University of Auckland) by Bill Barton and Marston Conder
Philip Sharp (University of Auckland) by James Sneyd and Vivien Kirk
Graham Weir (IRL) (currently co-opted onto council) by Robert McLachlan and Winston Sweatman

It was moved that Boris Baemer and Rua Murray act as election scrutineers (McLachlan, Sweatman). This was approved. Rick Beatson, Tom ter Elst and Graham Weir were duly elected Councillors.

9. **New Zealand Journal of Mathematics** A report by David Gauld on the New Zealand Journal of Mathematics was presented. In particular the journal has now sucessfully moved to online publication. There is a suggestion that prize/award winners could be invited to write review articles for the journal. The president will communicate this suggestion to the NZJM committee.

10. **Forder/Visiting Lecturer**

    Discussed above.

11. **Research Awards/Medals**

    Discussed above.

12. **General business**

    It was commented that the Forder Lecturer had not made a presentation at Massey University Albany. It was noted by the meeting that such a touring lecturer should normally visit campuses when there is a demand.

    The meeting closed at 6p.m.

Application for membership of the NZMS

The New Zealand Mathematical Society (Inc.) is the representative body of professional mathematicians in New Zealand, and was founded in 1974. Its aims include promotion of research in the mathematical sciences, the development, application and dissemination of mathematical knowledge within New Zealand, and effective cooperation and collaboration between mathematicians and their colleagues in New Zealand and in other countries.

Membership categories:

(Full details at www.math.waikato.ac.nz/NZMS/NZMS.html)

Ordinary*	$40 p.a.	
Reciprocal	$20 p.a.	

For overseas residents who are fully paid-up members of societies with which the NZMS maintains a reciprocity agreement (the American Mathematical Society, the Australian Mathematical Society, the Canadian Mathematical Society, the Edinburgh Mathematical Society, the Irish Mathematical Society, the London Mathematical Society, and the Mathematical Society of Japan).

Student*	$ 8 p.a.	For currently enrolled students in NZ
Overseas student	$20 p.a.	For currently enrolled students in overseas

(GST is added to rates for NZ residents.)

Members can also elect to make a donation, when paying their subs, to the NZMS Endowment for Student Support.

* The Society offers NZ students and new staff a special free one-year membership.

Please complete below and mail to:

John Shanks, NZMS Membership Secretary,
Department of Mathematics and Statistics,
University of Otago, P.O. Box 56, Dunedin, NZ

or Fax: +64 (3) 479 8427

E-mail: jshanks@maths.otago.ac.nz

NZMS Application Form

Name: _____ Title: _____

Address: _____

_____

_____

_____

An institutional address is preferred

E-mail: _____

Membership category: ☐ Ordinary ☐ Reciprocal ☐ Student ☐ Overseas student

If Reciprocal then complete this:

I am a fully-paid up member of _____

Signed: _____ Date: _____

Please send no money now. You will be invoiced once your application is accepted.