Number 105 April 2009

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 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

I now have agreement from the Royal Society to add the proposed Jones Medal to their suite of awards, and agreement from Vaughan Jones (who had been out of the loop until now) to allow the medal to be named in his honour. In truth, this hardly begins to repay Vaughan for his long-standing dedication to mathematics in New Zealand.

One of the NZMS's main activities is the support of younger researchers through travel grants. In recent years, these have been made exclusively to PhD students, although this was never intended to be the case and grants to other members have been made in the past. At its last meeting the Council made explicit the policy that all early career researchers are eligible to apply for travel grants. (As with Marsden Fast Start grants and the Early Career Award, this will normally mean within 7 years of the PhD.)

A happy outcome of Springer's support of the ANZMC last December was that Springer have now agreed to sponsor the Aitken Prize by providing three book tokens annually for the winner(s) and runners-up. As the Council has doubled the prize (to $500) the Aitken is now respectably resourced.

Congratulations to Mike Hendy and Dean Halford, both of Massey University, who were both recognized in the 2009 New Year's Honours as Officers of the New Zealand Order of Merit, Mike for services to mathematical biology and Dean for services to education.

Robert McLachlan
President

LOCAL NEWS

AGRESEARCH

Phuong Nguyen has just joined the team to begin a PhD with Tanya Soboleva. Phuong completed her undergraduate studies at the prestigious Moscow State University. She will be developing mathematical models of biochemical pathways during embryo growth.

We farewell Rajiv Chaturvedi who leaves AgResearch after 4 years with the company. Rajiv is now working at IRL in Wellington. We wish Rajiv all the best for the future.

In February we had a visit from Ze'ev Hochberg, a Professor of Pediatrics and Endocrinology at the Technion, Israel. Ze'ev is interested in the mechanisms of child growth, life history and obesity. Paul Shorten and Tanya Soboleva have just begun a collaborative project to model child growth using data collected from England, France, Israel and Malawi. Dr Maria Ferrua from the Riddet CoRE visited in March to discuss her project on stomach mechanics during digestion. Tanya is currently looking for a PhD student to model microbial and biochemical processes in the stomach.

Paul Shorten and his wife Mami welcomed their first child Liam Keiji Shorten born on the 25th of November 2008 weighing 7 pounds 2 ounces. Liam arrived two weeks early and is doing well.

Liam Keiji Shorten

The Bioinformatics, Mathematics and Statistics group met in Palmerston North in March for our annual retreat. The retreat included a trip to the wind farm and a treasure hunt around central Palmerston North. Unfortunately no treasure was found.

The AgResearch Bioinformatics, Mathematics and Statistics group

Paul Shorten

THE UNIVERSITY OF AUCKLAND

DEPARTMENT OF ENGINEERING SCIENCE

We have quite a lot of activity to report for the last couple of months.

Most importantly, new staff have joined the Department. We welcome 3 new staff members in 2009. After a long 6 months without a Department Manager, Shobha Herle joins us in this role, having spent several years working in administrative positions within the Statistics Department at Auckland University. Dr Andrew Taberner formally joined the Dept in Feb this year in a position joint with the Auckland Bioengineering Institute. Andrew has previously worked as a post doctoral fellow in the Department before spending several years at MIT in the US working on instrumentation development. We are also very pleased to have Andrea Raith join us for 2 years. Andrea is currently finishing her PhD in operations research (OR), and will continue research and teaching in the OR area.

We also note with regret the departure of two lecturers in operations research. Hamish Waterer took up a research position at the University of Newcastle, Australia. Stuart Mitchell joined the Light Metals Research Centre at Auckland University.

As the newsletter goes to print, we are waiting for the results of the prestigious INFORMS Franz Edelman Award competition for excellence in operations research practice. Andy Philpott (with Graeme Everett, an Engineering Science graduate, and Kjetil Vatn) are finalists for their PIVOT (Paper Industry Value Optimization Tool) used by Norske Skog, the Norwegian company owning and operating the Tasman paper mill in Kawerau.

As another award (or punishment?) we report that the writer of these lines has been appointed

area editor for "Decision Analysis and Decision Making Techniques" of the Asia-Pacific Journal of Operational Research.

Oliver Weide completed his PhD on "Robust and Integrated Airline Scheduling". Oliver's research was partially supported by a PhD Scholarship from the New Zealand Institute of Mathematics and its Applications. During 2007 Oliver provided technical support to the Optima Corporation who implemented the results of his research in the Air New Zealand crew and aircraft scheduling systems. He now works as a systems developer for the Optima Corporation using mathematical optimisation techniques to solve a number of practical problems.

Other newsworthy items are listed below.

VISITORS

Michael J. Todd, Leon C. Welch Professor School of Operations Research and Information Engineering at Cornell University visited in March and taught our 4th year students in semidefinite programming.

Allen Holder, Associate Professor of Mathematics at Rose-Hulman Institute of Technology, Terre Haute, Indiana, visited Matthias Ehrgott for 10 days in February to work on a joint paper on Operations Research in Radiation Oncology.

SEMINARS

Ted Ralphs (Lehigh University, Bethlehem, PA, USA), Ted is a visiting lecturer of the Operational Research Society of New Zealand. "Mixed Integer Bilevel Programming"

Anita Schoebel (University of Goettingen, Germany), Anita is also a visting lecturer of the Operational Research Society of New Zealand. "A customer-oriented approach to integrate Line Planning, Timetabling, and Vehicle Scheduling"

Mike Todd (Cornell University, Ithaca, NY, USA), "Minimum Volume Ellipsoids: Applications, Duality and Algorithms"

Lei (Oddo) Zhang (University of Auckland), Oddo is a PhD student working with Andrew Mason. "Optimization of ambulance move up"

Matthew Finn (University of Adelaide), Matthew visited Richard Clarke. "Topological chaos in flows on surfaces of arbitrary genus"

BOOKS

Matthias Ehrgott is co-editor of the new book: "Multiobjective Programming and Goal Programming Theoretical Results and Practical Applications" (Barichard, V.; Ehrgott, M.; Gandibleux, X.; T'Kindt, V. (Eds.)) Volume 618 of Lecture Notes in Economics and Mathematical Systems 2009, XV, 298 p. 98 illus.,ISBN: 978-3-540-85645-0

This book gives the reader an insight into the state of the art in the field of multiobjective linear, nonlinear and combinatorial programming, goal programming and multiobjective metaheuristics. The 26 papers describe all relevant trends in this fields of research. They cover a wide range of topics ranging from theoretical investigations to algorithms, dealing with uncertainty, and applications to real world problems such as engineering design, water distribution systems and portfolio selection. The book is based on the papers of the seventh international conference on multiple objective programming and goal programming (MOPGP06).

Sadiq Zarrouk is the author of a new book: "Reacting Flows in Porous Media: Complex Multi-Phase, Multi-Component Simulation", Publisher: VDM Verlag Dr. Mller (November 27, 2008), 424 pages, ISBN-10: 3639099850 — ISBN-13: 9783639-099850

Modelling of multi-component, multi-phase reacting flows in porous and fractured media is investigated with examples on spontaneous combustion of coal and the extraction of coalbed methane. Chemical reactions, adsorption, gaseous diffusion and changes in transport properties (porosity and permeability) are of particular importance. These matters along with numerical dispersion and stiffness are discussed. A new power law model for representing the diminishing reaction effect during self-heating reactions was proposed, and compared with existing models. A modified version of the TOUGH2 simulator is used for modelling the reactivity of coal. Moisture effect on the reaction rate was then introduced to TOUGH2 using a new two-phase equation of state (EOS) module. Finally the production of methane from low rank coalbeds was investigated. A new and versatile coalbed methane simulator was developed.

Matthias Ehrgott

DEPARTMENT OF MATHEMATICS

Keith John Worsley arrived from Auckland Grammar School in 1970, and in 1978 he graduated PhD for his thesis (supervised by Prof. Alastair Scott) on "Significance in automatic interaction detection".

He then went to McGill University, where he became the leader in applying statistics to research on brain activity, and in 1994 he became a full Professor in the Department of Statistics. In August 2008 he moved to the University of Chicago as Professor of Statistics and of Physiology, but he soon became unwell. Keith Worsley died of pancreatic cancer on 2009 February 27, at the age of 57. Memorial services were held at McGill University on March 17, and at the University of Auckland on March 28. An obituary article will appear in a later issue.

On December 4, 2008, the Department held a celebration to honour David Smith, Joel Schiff and Paul Hafner on their retirement from teaching and to recognise their significant contributions to Mathematics, over almost four decades. Three distinguished visitors gave talks in honour of them: Jonathan Borwein, FRSC (Dalhousie University) spoke on "The past 60 years in Mathematics", Cheryl Praeger FAA (UWA) spoke on "The random revolution: how statistics and complexity theory have partnered more traditional mathematics to achieve smarter computation", and Robert E. Megginson (University of Michigan) spoke on "What Has Been Happening in Undergraduate Research Experiences in Mathematics in the United States in the Last Ten Years?".

Bill Barton's 4-year term as Head of Department ends in March, with James Sneyd succeeding him as HOD.

David Gauld (and several students) attended the NZMRI Summer Workshop on algorithmic information theory, computability and complexity.

Pier Giorgio Oddifreddi, a mathematician and something of a media star in Italy, invited some of the world's greatest scientific minds to take part in a "Festival della Matematica" in Rome from March 19 to 21. It was the third such event that he has organized, on behalf of the Mayor of Rome. The invitees included 5 Nobel Prize winners (in Chemistry, Economics and Physics) plus other "beautiful minds", including John Nash, Edward Witten, Ian Stewart, Eugenio Calabi and our own Vaughan Jones. Vaughan was invited to give an expository lecture to a large crowd of interested people, both professionals and amateurs. An interview with him appeared in the Italian newspaper 'La Stampa' on March 18.

Vivien Kirk has been promoted over the Senior Lecturer bar, with an extra jump.

Helen McKenzie has been promoted over the bar in the Senior Tutor scale.

Mike Meylan has been promoted over the Senior Lecturer bar.

Alex Morenko had been a Tutor here for a few years, and now he is a Senior Lecturer in the School of Engineering and Science of Curtin University (of Perth), at its new Malaysian campus in Sarawak.

Maxine Pfannkuch (with PhD student Pip Arnold) has won a $130,000 TLRI grant for the study "Building Students' Inferential Reasoning: Statistics Curriculum Levels 5 & 6".

Claire Postlethwaite has won a FRDF New Staff Grant for $30,000 for her project "Bifurcations in Nonlinear Differential Equations and Mathematical Models of Animal Behaviour".

Ivan Reilly has been awarded the status of Professor Emeritus by the University Council.

Arkadii Slinko has been promoted to Associate Professor.

Shayne Waldron has been promoted over the Senior Lecturer bar.

Caroline Yoon won a $130,000 TLRI grant for the study "Designing learning environments that encourage a wide range of mathematical abilities and understandings". Caroline was with us when she won the award, but now she has moved to the Faculty of Education. Jeanette Saunders, our new Teaching Fellow for 2009, comes to us from HOD Mathematics at St Cuthbert's School. She has a long association with mathematics education and teacher development. We in the Mathematics Education Unit are delighted to have her experience and networks for the year. Jeanette will be teaching on the 108 team, and the Science Communication course.

Malte Peter has been here for 18 months, collaborating with Mike Meylan, and now he has been appointed to a tenure-track professorship in the Institute of Mathematics at the University of Augsburg in Germany. That position is also associated with the new Augsburg Centre for Innovative Technologies. Malte tells me that Augsburg, founded in 15BC, is about 60km northwest of Munich, has roughly 270,000 inhabitants, and it may be best known to most people in the Department as the home of MAN (which manufactures most of the buses running in the Auckland region).

Mathematics Day for Teachers was held at Tamaki Campus on Friday, November 28, after an absence of one year. It was a resounding success, with over 120 registrations. Once again the department was well-represented with a plenary talk by Caroline Yoon and Peter Radonich, and other workshop contributions by Philip Sharp, Judy Paterson, Anne Blundell, Caroline Yoon, Sue Noble,

Joel Schiff and Hugh Gribben. Special thanks must go to Anne Blundell who, as principal organizer of the event for the Department jointly with the Auckland Mathematics Association, worked tirelessly on the planning details to ensure its success.

Congratulations to Julia, Isabel and Hugh for their sterling work on the Girls in Science programme. They held six, sessions each of which were very well-received and much appreciated by the audience. Not only congratulations on a job well done - but the thanks of the whole Department for your work on our behalf. It is such efforts that keep our enrolments up and keep us all employed. (Not to mention keeping the love of mathematics alive and well in New Zealand).

An Algebra Workshop was held here on January 28 & 29, with lectures by: Bill Kantor (Eugene, Oregon)"Cycles in groups and graphs", Felix Noesche (RWTH Aachen) "The Modular Atlas Project", Robert Wilson (Queen Mary, University of London) "Octonions and the Leech lattice", Max Neunhoffer (University of St Andrews) "Aschbacher's Theorem revisited with a view to constructive matrix group recognition", Robert Bailey (Carleton University) "Base size, metric dimension and other stories", Asia Weiss (York University, Toronto) "Combinatorial structure of chiral polyhedra in Euclidean space", Ivan Shestakov (University of San Paolo) "Automorphisms of polynomials and free algebras".

Sina Greenwood organized a Topology Workshop on December 10 at her home in Devonport, featuring Prof. Alexander Arhangelskii, Prof. Peter Nyikos and Dr Chris Good.

Recent visitors include: Ochoche Abraham (Federal University of Technology Minna, Nigeria), Prof. Alexander Arkhangelskii (Ohio University, Auckland Distinguished Visitor Award), Dr Robert Bailey (Carleton University), Dr Tina Chan (Taichung Institute of Technology, Taiwan), Dr David Chen (Ling Tung University, Taiwan), Distinguished University Professor Rob Corless (University of Western Ontario), Prof. Carl de Boor (University of Wisconsin-Madison), Dr Alice Devillers (UWA), Dr Dane Flannery (National University of Ireland, Galway), Dr Chris Good (University of Birmingham), Prof. Alexander Ivanov (Imperial College London), Prof. Bill Kantor (Oregon), Dr Steffen Klaere (University of Vienna), Dr Young Soo Kwon (Yeungnam University, Korea), Dr Simon Lawrence (Oxford), Prof. Dragan Marusic (Universities of Ljubljana and Primorska), Prof. Bob Megginson (University of Michigan), Dr Scott Murray (University of Sydney), Dr Max Neunhoffer (University of St Andrews), Dr Felix Noesche (RWTH Aachen), Prof. Peter Nyikos (University of South Carolina), Dr Helmut Podhaisky (University of Halle), Prof. Cheryl Praeger (UWA), Prof. Alastair Rucklidge (University of Leeds), Prof. Alan Schoenfeld (UC-Berkeley), Prof. Uwe Semmelmann (University of Cologne), Prof. Akos Seress (Ohio State University), Prof. Ivan Shestakov (University of San Paolo), Prof. Andrew Waldron (UC-Davis), Prof. Asia Ivic Weiss (York University, Toronto), Prof. Rob Wilson (Queen Mary, University of London).

Elan Gin has completed her PhD, and she has been offered a post-doctoral fellowship at Dresden University. Greg Oates has completed his PhD.

SEMINARS

Javier Cirre (UNED, Madrid), "Riemann surfaces with maximal real symmetry"

Peter Nyikos (University of South Carolina), "Some applications of trees to topology", "Large cardinals and general topology", and "The Tukey order on finite graphs"

Alexandre Arhangelskii (Ohio University), "On remainders of topological groups"

Chris Good (Birmingham University), "The structure of the set of inhomogeneities in inverse limit sets"

Alexander Ivanov (Imperial College London), "A 13-dimensional representation of S_4 which is involved in the Monster algebra"

Yuri Vyatkin "The basics of the Riemannian geometry"

Ivan Shestakov (University of Sao Paulo), "Self-similar nil Lie algebras and their enveloping associative algebras"

Tom ter Elst, "Sectorial forms and degenerate operators"

Rod Gover "The Fefferman space over a CR manifold and prolonged differential systems"

Alice Devillers (UWA) "Different points of view on buildings", and "S_3-involution graphs"

Joanne Mulligan (Macquarie University), "Reconceptualising early mathematics learning: the fundamental role of pattern and structure"

Howard Cohl "Fourier Expansions of the Fundamental Solutions for Powers of the Laplacian in $\mathbf{R}^n$"

Dragan Marusic (Universities of Ljubljana and Primorska), "Hamiltonian cycles in cubic Cayley graphs"

Andrew Waldron (UC-Davis), "Differential complexes and quantisation"

Alastair Rucklidge (University of Leeds), "Parametrically forced patterns and quasipatterns"

Uwe Semmelmann (University of Koeln), "The Hermitian Laplace operator on nearly-Kaehler manifolds"

Arkadii Slinko "Axioms for ex-post rationality"

Toby Walsh (UNSW & NICTA (Australia)), "Where are the really hard manipulation problems?"

Malte Peter "Water-wave scattering by vast fields of bodies with application to ice floes in the Marginal Ice Zone"

Paul-Andi Nagy "Toric nearly-Kaehler manifolds"

David Gauld "Foliations of manifolds 1"

Geoff Pritchard (Department of Statistics), "Impartial-culture asymptotics: a central limit theorem for manipulation of elections"

David Bryant "Genetics, future-dependent processes, and the origins of domestication"

Garry J. Tee

DEPARTMENT OF STATISTICS

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. Oblivious to all the fuss, said the Herald, Ross was busy pottering among his tomatoes in Avondale. Watch this space for the release of the world's first GNU-licence tomatoes with lexical scoping . . . ?

Ross (right) receiving the Pickering Medal

In February we said a reluctant farewell to Marti Anderson, who has taken up a chair in statistics at Massey. Marti has made huge contributions to the department over the last nine years, and she will be greatly missed. Of course, you never lose a colleague - you gain a department, and we are all looking forward to closer contact with our Albany colleagues as a result of Marti's appointment. We also bade reluctant farewells to two stars of the department office: Sharon Walker and Shobha Herle, both of whom have gone on to well-deserved promotions elsewhere in the university.

Paul Murrell is continuing the departmental tradition of creating free statistical software resources with the publication of his second book: "Introduction to Data Technologies", available for download under a Creative Commons licence from `http://www.stat.auckland.ac.nz/ paul/ItDT/`. The new book comes just three years after Paul's immensely popular "R Graphics". With all these books emerging from Paul's office, George Seber is said to be looking over his shoulder . . .

Alan Lee is spending this year in the Science Faculty's Top Office, where he is being kept busy in the role of Acting Dean. Luckily for us, he is keeping a strong hand in statistics, and in November was appointed to the Statistics New Zealand Advisory Committee on Official Statistics, where he joins the great and the good including the nation's chief economist, together with other business and ministry chief executives.

Mark Holmes has been enticing some of the world's top probabilists to the department. Before Christmas we were visited by Greg Lawler (Chicago), who gave a very accessible talk on work that ultimately contributed to a Fields Medal for one of the participants. Mark is currently working with Tom Salisbury, Past President of the Canadian Mathematics Society and former deputy director of the Fields Institute, who is visiting the department for 3 months till the end of March. Mark was also an invited speaker at the 7th World Congress in Probability and Statistics last year in Singapore. Thomas Yee is enjoying a brisk change of climate

from his previous sabbatical in Singapore, battling snow storms in Massachusetts where he is spending his sabbatical at the Harvard Institute for Quantitative Social Science.

Congratulations are due to PhD candidate Jenny Wilcock, who has been awarded a Claude McCarthy Fellowship from the Public Trust and the NZVCC. Jenny will be using her fellowship to attend the Joint Statistical Meetings in Washington, DC, in August 2009, to present a paper on her PhD research. Congratulations also to Dr Sarah Song, the latest PhD graduate from our department.

Finally, congratulations to our department's expert programmer, photographer, and all-things-technical advisor Stephen Cope, on his marriage to Stephanie. Seizing the moment between showers and all the other people in the Auckland Domain, they somehow managed to get the Wintergardens to themselves for the wedding pics, demonstrating that Stephen's photos even look great when he's on the other side of the camera!

Stephen and his wife Stephanie (Stephanie looking stunning in her red dress!)

Rachel Fewster

AUCKLAND UNIVERSITY OF TECHNOLOGY

DEPARTMENT OF MATHEMATICS AND STATISTICS

In 2007, the School of Computer and Information Sciences and the School of Mathematical Sciences in AUT merged together to form a new school, namely the School of Computing and Mathematical Sciences (SCMS). In Mathematical Sciences, the SCMS offers the BMathSc degree with four majors (Analytics, Applied Mathematics, Astronomy, and Computer Science), and also the honours degree in Applied Mathematics and Computer Science. Astronomy and Analytics majors, as well as the honours degree started in 2009.

The SCMS hosts the AUT Institute for Radiophysics and Space Research (IRSR). This group, led by Professor Sergei Gulyaev, is actively involved with the development of AUT's Radio Observatory at Warkworth, 60 km North of Auckland. The Institute was recently successful in winning an IBM SUR grant for an advanced Cell processor based Blade Server. This equipment will be used to research and develop correlation software and high speed networking associated with the synthesis imaging techniques exploited by radio astronomers.

The Mathematical Sciences Disciplinary Group continued hosting the regular Auckland Java User Group industry workshops. On 17 September 2008, it also hosted a one-day conference on Java Emerging Technologies with around 50 participants. The conference was fully funded by industry sponsors and so could be made free for participants.

In November-December 2008, Neil Binnie visited the Shanghai Institute of Technology, where he taught "Quantitative Statistics for Research" to students doing a joint programme in Analytical Chemistry. AUT has an agreement to teach the joint programme for ten years and this was Neil's third visit. The cohort had 70 students in 2008 and will be increasing to 120 in 2009.

Murray Black took 6 month research and study leave. During that period, he focused on his PhD research project in Statistics Education. In February 2009, he participated in an international two-day forum in Brisbane hosted by Professor Helen MacGillivray from QUT on Building Networks in Statistical Education. Twenty universities were represented with AUT being one of the three from New Zealand. Now, Murray is officially back to the SCMS and continues his role as an associate head of school, leading the Mathematical Sciences Disciplinary Group.

After presenting invited talks at the conference "Analysis, Topology and Applications" in Serbia and the conference "Advances in Set-Theoretic Topology" in Erice, Jiling Cao visited the Mathematics Department at the University of Helsinki in July 2008, where he and Heikki J. K. Junnila started a joint research project on the Wijsman topology, financially supported by the Maguns Ehrnrooth Foundation of the Finnish Society of Sciences and Letters. Jiling and Heikki will continue their collaboration on this project with Jiling's second visit to Helsinki in 2009. In November 2008, Jiling was invited by the Pure Mathematics Department at the University of Calcutta to deliver the Rani & Asutosh Ganguli Memorial Lecture. He also visited the S. N. Bose National Centre of Basic Sciences in India, where he presented two talks on Set-Valued Dynamical Systems. Recently, Jiling has been ap-

pointed an editor for "Questions and Answers in General Topology", a journal published in Japan and devoted to general and geometric topology including set-theoretic topology, topological algebras, theory of continua, topological dynamics and related fields.

In 2008, Andrew Ensor was gifted further computer equipment by Sun Microsystem due to his contributions toward promoting Java technologies in NZ. Recently, one of his projects was awarded a Technology in Industry Fellowship for joint mobile system research with Key Farm Solutions Ltd.

On his retirement from Massey University, Jeff Hunter joined the SCMS as a part-time Adjunct Professor in Mathematical Sciences. Quite unbecoming for a Professor of Statistics, he has been instrumental in recommending the removal of a formal Statistics major from the BMathSc degree but reshaping the programme to introduce a new major in "Analytics"- a much wider comprehensive integrated linking of computing, mathematics and statistics to provide students interested in pursuing careers in business and industry with appropriate quantitative and computing tools. Jeff also continued his research activities presenting a paper on "Bounds on Expected Coupling Times in a Markov Chain" at the International Workshop on Matrices and Statistics held at Tomar, Portugal in July 2007. He has been on the International Organising Committee for this series of workshops for the past two years. He continues in this capacity, with the 2009 meeting being held in Smolenice, Slovakia in June and agreeing to chair the IOC for the meeting to be held in Shanghai in 2010.

Sergiy Klymchuk spent one semester in 2008 at the Wismar University of Technology, Business and Design (Germany). As a result of collaboration with his German colleagues, a joint paper was published by one of the Oxford journals – "Teaching Mathematics and its Applications". While in Europe Sergiy gave talks at several conferences. Two of Sergiy's books on counter-examples in Calculus have been accepted for publication - one by the Mathematical Association of America and the other by the Imperial College Press, London. In 2008, Sergiy and his UoA collaborator Mike Thomas (together with six other team members, including Peter Watson) were awarded a two-year grant in total of $180,000 for their joint project, "Analysing the Transition from Secondary to Tertiary Education in Mathematics", by the New Zealand Council for Education Research. He also won the "Good Practice Publication Grant" of $3,000 from the Aotearoa National Centre for Tertiary Teaching Excellence.

From 14 July to 25 July 2008, the SCMS and the Mathematics Department at UoA jointly hosted the conference "GLADE 2008", an international conference on numerical methods for differential equations. Alla Shymanska was a member of the organising committee. She also gave a talk on "Mathematical and numerical modelling of potential distributions and electron trajectories". In June 2008, Alla gave a talk on "Mathematical modelling of image quality characteristics in electronic devices" at the NZ Applied Mathematics Forum hosted by UoA.

Peter Watson presented in Kawarau in Semester 2 2008 a Mathematics programme to apprentices in the final year of their apprenticeship. In June and November 2008, he presented two two-day seminars to accountants on "Advanced Spreadsheet Skills for Finance" in both Wellington and Auckland.

In November 2008, Stuart Young filed his PhD thesis on "The Relationship between Organisational Fitness and Business Performance: Specific Evidence for SMEs".

In Semester 1 2009, Dr Kevin Byard, Dr Renu Choudhary, Dr Guinevere Nalder, Mr Michael Cottam, Mr Ian Hampton and Mr Graeme Holden joined the SCMS as part-time lecturers in Mathematics.

Recently, Dr. Gerald H. L. Cheang (Nanyang Technical University, Singapore), Prof. Zbigniew Michalewicz (University of Adelaide, Australia) and Prof. Tsugunori Nogura (Ehime University, Japan) have visited the Mathematical Sciences Disciplinary Group in the SCMS.

Two students from the SCMS, Anuj Bhowmik and Mahmoud Mahmoud, won the AUT university Graduate Assistantship awards in 2009. Currently, Mahmoud is doing his honours degree in Computer Science, while Anuj will enroll as a PhD candidate in Mathematical Sciences.

SEMINARS

Gerald H. L. Cheang (Nanyang Technical University), "Mathematics of option pricing" and "Option pricing under stochastic volatility and jump-diffusion dynamics: a martingale approach"

Zbigniew Michalewicz (University of Adelaide), "Puzzle-based learning"

Tsugunori Nogura (Ehime University), "Selections for hyperspaces"

Jiling Cao

UNIVERSITY OF CANTERBURY

DEPARTMENT OF MATHEMATICS AND STATISTICS

The university has decreed that from 2011, all courses must be worth a multiple of 15 points. We are hard at work on a complete overhaul of what we teach. In particular, we have to combine existing 11-point courses at 200-level to create a smaller number of 15-point courses. This is lots of effort for everyone, but it gives us the chance to rethink our programme.

Every year the department runs a morning or afternoon tea for all students majoring in maths or statistics. Most of our first-year students and many of the second-years are majoring in Engineering or some other subject, so it's hard for those doing maths/stats degrees to feel a sense of community. This year we experimented by asking some of our Honours and postgraduate students to run the event as a pizza afternoon, with no staff allowed. Some fifty or so students turned up, a full order of magnitude better than our usual turn-out. Thanks to Thomas Steinke and the other organisers.

Students gathering at the pizza party

Mike Steel and Charles Semple organised the 13th annual New Zealand Phylogenetics Meeting in Kaikoura in February, with the help of Dietrich Radel. The meeting attracted more than fifty participants. Many of them returned to Christchurch on February 12th — Charles Darwin's 200th birthday — to attend BioEd, a three-day workshop on biology education. Later in February a week-long workshop on theoretical biology took place at the university's Cass field station.

Leo van Iersel arrived in February to start a 2-year postdoc, working on phylogenetic networks with Charles Semple and Mike Steel. Leo has just completed his PhD at Eindhoven University, Netherlands, and is being funded here by the Allan Wilson Centre. A number of other overseas colleagues visited in February and March to work with Charles and Mike on phylogenetics and algorithms.

Raaz Sainudiin gave talks at the Kaikoura meeting (see above) and the Workshop on High Dimensional Approximation in Sydney in February, and he also gave a seminar at Wollongong. Jennifer Brown spoke at the Building Networks in Statistics Education Forum at QUT in Brisbane in February. James Degnan also spoke at Kaikoura. Douglas Bridges visited the University of Munich and the Technical University of Vienna for three weeks in January, working with people there and giving several talks. Ben Martin spent two weeks visiting the Isaac Newton Institute in Cambridge and gave three talks in the UK.

We welcome Philippa Williams into a fixed-term position as Senior Tutor. Philippa is already a familiar face in the department: she has been lecturing, tutoring and doing course administration for a while now.

Recent visitors include: Prof Andreas Dress (CAS-MPG Shanghai), Dr Magnus Bordewich (Durham), Anton Hedin (Uppsala), Prof Daniel Huson (Tübingen), Prof Carey Priebe (Johns Hopkins), Dr Regula Rupp (Tübingen), Dr Tanja Stadler (ETH Zürich), Dr Bhalchandra Thatte (Oxford), Dr Granville Tunnicliffe-Wilson, Dr Wolfgang zu Castell-Rüdenhausen (Helmholtz Centre, Munich)

SEMINARS

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

Kyoko Fukuda (University of Canterbury), "Computer-enhanced knowledge discovery in environmental science"

Ben Martin (University of Canterbury), "What is a Dynkin diagram and why should I care?"

Magnus Bordewich (University of Durham), "Markov Chain Monte Carlo: forget the past and hit the casino?"

Wolfgang zu Castell (Helmholtz Center Munich), "RBFs, Kriging, Support Vector Machines. All the same thing?"

Fred Daum (Integrated Defence Systems, Raytheon, USA), "Nonlinear filters with particle flow induced by log-homotopy"

Iris Loeb (University of Canterbury), "Proof assistants"

Carey Priebe (Johns Hopkins University), "Disparate information fusion: on the exploitation of multiple disparate dissimilarities"

Ben Martin

MASSEY UNIVERSITY

INSTITUTE OF FUNDAMENTAL SCIENCES (PALMERSTON NORTH)

We are sad to report the passing of Greg Arnold on 13th March 2009. Greg was a valued member of the Statistics group from 1970 until he retired from teaching last year. He is survived by his wife Barbara and three sons.

Statistics has been part of the Institute of Fundamental Sciences for over a year now, but has yet to join us physically in the Science Towers. Plans are afoot to bring them over, but as yet just when this will happen seems unclear.

Tammy Smith is developing a series of online tutorials for first year linear algebra that will help students visualize topics such as vectors, transformations in space, and linear programming. These tutorials will be web-based and will use moving graphical animations, color, and "voice" (a lecturer describing concepts). Each of the tutorials will contain quizzes embedded within them to provide students with a push, keeping them engaged in the learning process rather than just allowing them to be TV viewers of a tutorial.

Tammy's project is being funded by the internal Fund for Innovation and Excellence in Teaching, and as a result we've been re-joined this semester by Gillian Thornley. Gillian has come out of retirement temporarily to teach Tammy's classes, and is very much enjoying being back in the classroom.

Chris Tuffley helped teach at the NZ Mathematical Olympiad training camp in Christchurch in January, and has started a local "Maths Circle" for interested high school students. This meets once a month, and aims to help prepare students for the camp selection problems in September, and to introduce them to the beauty of mathematics. The group started out small — there were only two at the first meeting, back in November — but it seems to be growing, with eight attending the most recent meeting. Chris is hoping it will reach the point where he needs help paying for the chocolate biscuits at half time.

Charles Little continues to maintain a productive colloboration with Marcelo de Carvalho of Brazil, with Marcelo visiting us again early this year. Also visiting us briefly this semester was Erik van Vleck, of the University of Kansas.

Barbara Holland has been travelling recently. She writes: "In early March I travelled to Berlin, to attend a 4 day conference on Deep Metazoan Phylogeny. The German Science Foundation has chosen Deep Animal Phylogeny as one of its priority programmes — this means 6 years funding for a group of researchers across many German Universities (and Vienna). The project is into its 4th year so there were many interesting results to report, and many analytical challenges coming to the surface. Many of the conference attendees were involved in the Priority Programme but they'd also invited a number of international researchers. I think I got invited partly due to New Zealand's strong reputation for phylogenetic research, and partly because I'd done a postdoc in 2001–2002 with Wolfgang Waegele who was one of the organisers.

"One of the things that impressed me most about the research programme was the collaboration between molecular phylogeneticists and morphologists. Molecular data has suggested some relationships that were originally very surprising to morphologists but some of these now appear to have gained acceptance. For instance Ecdysozoa seems to have won out over Coelomata. This groups arthropods with nematodes and has chordates branching further back — or in terms of model organisms gives (H. sapiens, (C. elegans, D. melanogaster)) instead of (C. elegans, (H. sapiens, D. melanogaster)) as was once thought.

"New sequencing approaches have meant a change in fundamental approach to assembling data sets. Rather than picking one or a few genes and sequencing them for all taxa under consideration, it is common to start by sequencing a great number of genes (or ESTs — expressed sequence tags) at random. This produces large but often very sparse data matrices. Selecting which subset of this data to analyse so as to maximise power to resolve evolutionary relationships and to minimise problems that might bias the resulting estimate of the evolutionary tree is still an open problem.

"On a different note, I can recommend a visit to Berlin for anyone with an interest in modern architecture. They seem to have finished all the new construction that was underway when I last visited 7 years ago, the area where the wall used to be has been filled in with impressive new buildings."

SEMINARS

Fabio Santos, "The Pfaffian Orientation Problem of Graphs"

Marcelo Carvalho (Federal University of Mato

Grosso do Sul, Brazil), "Join Covered Graphs and Applications"

Shlomo Moran (Technion, Israel), "Towards Optimal Distance Functions for Stochastic Substitutions Models"

Erik van Vleck (University of Kansas), "Dichotomy, Matrix Decompositions, and Newton's Method"

Christopher Tuffley

INSTITUTE OF INFORMATION AND MATHEMATICAL SCIENCES (ALBANY)

Mathematics News

Dr Heung Yeung (Frederick) Lam has accepted a 3-year position as mathematics tutor.

Ms Joanne Mann has accepted the position as Research Officer for the Centre for Mathematics in Industry. Currently she is awaiting the oral examination of her PhD thesis submitted in January.

Alona Ben-Tal was an invited speaker at the Brazilian Congress on Biomedical Engineering 2008, 16-20 November, Salvador, Brazil and then visited Dr Jeffrey Smith at NIH, USA for three days. At the end of January Alona visited Dr Greg King and Ms Catherine Walsh at the Woolock Institute of Medical Research, Sydney, Australia for two days and gave a talk there.

In November, Haydn Cooper, Maarten Jordens, Gang Xie (John), Winston Sweatman and Qing Xiang Zhang all travelled to Whitianga to participate in the enjoyable NZ Mathematics and Statistics Postgraduate Conference.

Mick Roberts gave a talk at EPIDEMICS_1, the First International Conference on Infectious Disease Dynamics, in Asilomar, California, December 1 - 3.

Shaun Cooper, Carlo Laing, Gaven Martin, Robert McKibbin, Winston Sweatman and Graeme Wake attended the 7th Australia-New Zealand Mathematics Convention at the University of Canterbury, December 8 - 12. Gaven co-organized a special session on Geometry and Analysis, Graeme was co-organizer of the special session on Applied Dynamical Systems in Engineering and the Physical Sciences, and Winston was the convener of the judging panel for the Aitken prize.

Shaun Cooper gave an invited talk at the SASTRA conference in Kumbakonam, India, December 20 - 22, as well as lectures at the University of Mysore, Bangalore University and Kuvempu University.

Robert McKibbin and Winston Sweatman participated in MISG at the University of Wollongong, New South Wales, January 27 - 31. Winston was a moderator for the project on "Defects in metal coatings" brought to the workshop by Bluescope Steel.

Alona Ben-Tal, Robert McKibbin, Mick Roberts, Winston Sweatman and Graeme Wake gave talks at the ANZIAM conference in Caloundra, Queensland, February 1 - 5. In addition, Graeme served on the judging panel for the Cherry Prize.

Robert McKibbin was an invited speaker at the International Conference on Mathematical Modelling 2009, held at Sultan Qaboos University in Muscat, Oman, February 23 - 26. The conference encompassed porous media flows with applications to the petroleum industry, groundwater and CO2 sequestration. Robert spoke about some analytic models for pollutant transport in groundwater aquifers.

Graeme Wake has been appointed (by Australia!!) to the OECD Global Science Forum Experts Group on Mathematics in Industry which has undertaken a world-wide review of activity in this area. Its report will be presented to the Forum in April. Graeme has also been invited to lead a team of nine NZ based researchers to a combined Conference and Workshop in Shanghai in the last week of April on: "Mathematical Models of Dynamics and Control: Scaling from Genomes to Ecosystems" which incorporates a meeting under the NZ-China Scientific Agreement on Cooperation. Dr Sharleen Harper (see below) is also a member of this team. Professors Hamish Spencer (Otago) and Mike Steel (Canterbury) are keynote speakers at this meeting and Graeme is one of four organizers of this meeting. This meeting is to be held at the Partner Institute for Computational Biology, co-directed by Professor Andreas Dress, who is well-known in NZ. Andreas visited here in February (Canterbury and Albany).

Galkadowite Senaratne (Sena) has passed his PhD oral exam. Sena's thesis title is Microwave Signal Processing for Foreign Object Identification. He was supervised by Graeme Wake and Winston Sweatman and received external supervision from Richard Keam and Ray Simpkin.

Sharleen Harper passed her PhD oral examination, without any revisions being required. The thesis, titled Mathematical Models for Dispersal of Aerosol Droplets in an Agricultural Setting, was placed on the "Dean's list" for the top 10% of theses. Sharleen was supervised by Robert McKibbin and Graeme Wake, and now works as a Postdoctoral Fellow in NIWA (Auckland office) working on river models.

Another Thai exchange PhD student has arrived to work with Graeme Wake and Alona Ben-Tal in 2009 : Ms Chanakarn Kiataramkul from Mahidol University in Bangkok. Her project, based in the CoRE: National Research Centre of Growth and Development is in fetal growth modelling. She returns to Bangkok at the end of the 2009 academic year.

Congratulations to Frederick and Katherine Lam on the birth of their second daughter Erin on November 13 2008.

And congratulations to Carlo Laing and Mona-Lynn Courteau on the birth of their son Xavier on February 1 2009.

Statistics News

We are very pleased to welcome Marti Anderson as our new Professor of Statistics.

Since February we have also welcomed Mat Pawley (Post-Doctoral Fellow working with Marti) and three new PhD students: Norazlina Ismail from Malaysia is working with Paul Cowpertwait in the area of spatial-temporal stochastic modelling of rainfall,with practical applications in urban hydraulic system studies; Adam Smith is working with Marti Anderson looking at modelling the effects of marine reserves on biodiversity at a number of different trophic levels; and Katharina Parry who is working with Martin Hazelton (Manawatu campus) and Daniel Walsh on statistical inference for network-based transport models.

Preparations are underway for Marti's Marsden-funded deep-sea voyage to model distributions of fishes with depth in the area around White Island, with colleagues Vincent Zintzen, Clive Roberts and Carol Diebel from Te Papa in Wellington. Soon, another PhD student funded by this Marsden grant, Kirsten Rodgers, will also be joining us in the statistics group at IIMS.

Howard Edwards is on leave, working as a biostatistician for the Northern Rivers University Department of Rural Health in NSW for the first half of the year.

The last weekend in November Beatrix Jones attended the New Zealand Molecular Ecology conference. This is a fun, informal conference held each year at a beautiful, 'wild' location, featuring many short talks with high student representation. Beatrix presented a paper entitled "Blocks of Linked SNPs for Parentage Analysis." There was also an exciting optional excursion: rafting on the Kaituna river!

During the summer Paul Cowpertwait visited his colleague A/Prof Andrew Metcalfe in the School of Mathematical Sciences, University of Adelaide, to complete a book on using R for the analysis of time series.

In January, Marti was an invited plenary speaker at the International Temperate Reefs Symposium at the University of Adelaide, where she presented a talk entitled "When the plot gets muddy: models for environmental management in estuarine systems". Mat Pawley also spoke at the conference about long-term monitoring data from Long Bay, the results of contract research for the Auckland Regional Council.

SEMINARS

Helmut Maurer (University of Munster, Germany), "Theory and application of optimal control problems with control and state delays"

Alona Ben-Tal "Drift in the respiratory system"

Shaun Cooper "Inversion formulas for elliptic functions"

James Russell (University of California, Berkeley) "Bayesian Hierarchical Occupancy Modelling of the Swedish Bird Survey"

Carlo Laing "Taming chimeras: the dynamics of coupled phase oscillator networks"

Shaun Cooper and Marie Fitch

UNIVERSITY OF OTAGO

DEPARTMENT OF MATHEMATICS AND STATISTICS

In January 2009 Robert Aldred spent several weeks at Silpakorn University in Thailand. While there he continued research work with Professors Nawarat and Watcharapong Ananchuen as well as helping with the development of the Mathematics Ph.D. programme. It was a productive and enjoyable visit.

Jonni Bidwell had a thoroughly enjoyable five days in Melbourne. He attended a workshop entitled "Sequence Design and Its Applications in Communications and Cryptography" that featured talks on the use of sequences in satellites, ciphers, codes and algebra. The star speakers were Vijay Kumar (USC and Indian Institute of Science) who gave two insightful talks reconciling the engineering and mathematical aspects of using sequences in wireless communications, and Tor Helleseth (Bergen) who spoke about the cryptographic

use of sequences, including linear and non-linear feedback shift registers.

Dr Boris Baeumer is back from his sabbatical leave full of new ideas. He spent two weeks at Chalmers University, Sweden, visiting Professor Stig Larsson and our own Misi Kovacs, and three months at the Department of Statistics and Probability at Michigan State University, collaborating with Professor Mark Meerschaert. This was followed by a two month research stay at the Desert Research Institute in Reno, Nevada, collaborating with Profesors Rina Schumer, Yong Zhang and Matt Reeves. He gave seminar talks at Chalmers University, Sweden, University of Tübingen, Germany, a SIAM student chapter lecture at Louisiana State University, USA as well as an invited lecture at "Encounters between Discrete and Continuous Mathematics, Workshop on Dynamical Networks, Numerical Analysis and Ergodic Theory applied to Combinatorial Number Theory" at the Heinrich-Fabri Institute in Blaubeuren, Germany.

Austina Clark visited Prof. Anne Chao of National Tsing Hua University in Taiwan in January, 2009. Anne is a statistician specializing in Mark-Recapture Theory; she is also very interested in ecology and environmental issues. In recent years she has developed, together with her PhD students, the computer program SPADE which is used to estimate species richness and is widely used by ecologists. Austina was pleased to participate in the updating of this program and managed to test the program with some New Zealand data, provided by Dr Roger Littlejohn. It was refreshing for Austina to work with Anne, who has been a long time friend. However it was extremely cold in Taiwan during January, and the University there did not provide any heating. Next time she will remember to bring some New Zealand sheep with her to keep warm.

John Curran spent part of his leave, from August to December, at University College Cork, Ireland, where he was hosted by Professor Des MacHale, who works in group theory, but whose interests in algebra are quite broad. University College Cork is a little older than Otago, and is attractively sited close to the centre of Cork on the banks of the river Lee with some impressive old buildings together with stylish new ones. Although Ireland has the reputation of being somewhat of an IT Mecca, the lecture facilities and the brand new library at Cork did not measure up to Otago standards. However, the mathematics students were impressive and the 300 level courses observed were beyond their equivalent at Otago. John also visited University College Dublin, at the invitation of Russell Higgs, then President of the Irish Mathematical Society. This is a university of similar size to Otago, with excellent facilities, on a comparatively new campus just south of Dublin. However a major surprise was to find they had about 25 PhD students in algebra!

David Fletcher visited the Ecology Centre in Brisbane in January this year, and gave a seminar on "Assessing Population Trends". He also took time out to visit Malcolm Faddy (Adjunct Professor at QUT) at his home in Melany, a very pleasant town near the Sunshine Coast: one of the highlights of the visit being the leech-bites he experienced when walking in the local rain forest.

Visitors

Prof Kevin O'Meara, formerly from Univ of Canterbury, now retired, visited Assoc Prof John Clark from 26 January to 4 February.

Julie Legler, Professor of Statistics at St Olaf College in Minnesota visited the Department from January until the end of March while on sabbatical.

Russell Higgs from University College Dublin and President of the Irish Mathematical Society also spent his sabbatical here from January to March.

Christian Apeltauer, a visiting researcher from Universität Tübingen is working with Prof Frauendiener during February and March.

Fredrik Lindgren from Göteborg is visiting his PhD co-supervisor, Dr Mihaly Kovacs from

Seminars

Michael Albert (Department of Computer Science), "Pattern Classes and Permuting Machines "

Charmaine Dean (Simon Fraser University), "Mixed Non-homogenous Poisson Process Spline Models for the Analysis of Recurrent Event Panel Data"

Astrid an Huef (University of New South Wales), "Operator algebras associated to dynamical systems"

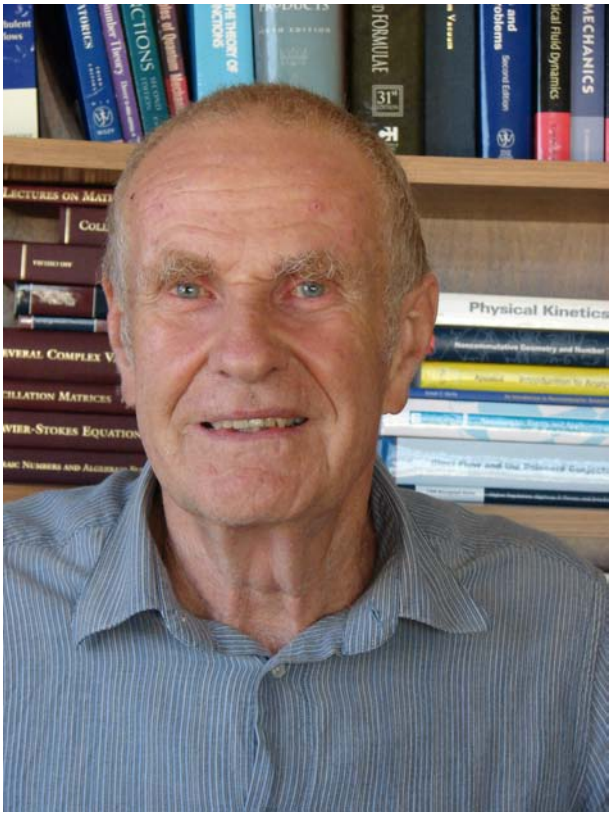
Michael Schlosser (University of Vienna), "An explicit formula for Macdonald polynomials"

Robert Aldred "Bounding the maximum number of cycles in a graph with p vertices and q edges"

Anastassia Baxevani (Göteborg University, Chalmers University of Technology), Spatio-temporal modelling of significant wave height"

Continues after centerfold ...

ALFRED SNEYD



Professor Alfred Sneyd retired at the end of January 2008. He had been at the University of Waikato since the beginning of 1970 when he took up a lectureship, and has spent his entire career there, aside from 18 months of extended leave at the University of Bristol. He was promoted to senior lecturer in 1974, to associate professor in 1990, and to professor in 2004.

Born in Auckland in 1943, Alfred did a BA and BSc at the University of Auckland with majors in Mathematics and French. He subsequently completed his MSc studies there. Then, thanks to a Commonwealth Scholarship, it was off to the UK where he did his PhD at the University of Cambridge (King's College) under the supervision of Keith Moffatt. The title of his thesis was "Flows driven by Lorentz forces".

With his PhD completed, he then arrived at the University of Waikato. His arrival in 1970 coincided with the first year of full teaching in the then School of Science. He planned and taught the initial programme in mathematical physics. During his long career, he has taught a wide range of papers in mathematics at all levels, including some papers in statistics. Alfred had done some lecturing before his arrival though, and the first lecture course he ever taught was one in algebraic number theory at the University of Auckland. So clearly Alfred has a wide-ranging knowledge of mathematics.

Alfred's current research work is on magnetohydrodynamics (MHD), which is concerned with the dynamics of electrically conducting fluids. In particular, he has been concerned with liquid-metal MHD (the stirring of liquid metals using magnetic fields), magnetic levitation, the MHD of aluminium reduction cells, and astrophysical MHD (to understand the energy release from solar flares). Other research work has been on mathematical modelling and fluid mechanics. This has included work on the theory of flexible wings.

Such work has resulted in research contracts with the Comalco Research Centre in Melbourne and the Light Metals Research Centre at the University of Auckland. Also, Alfred and Associate Professor

Kevin Broughan were involved in a large project with Electricorp in the early 90's.

He has published extensively in top journals such as the Journal of Fluid Mechanics. He is also a regular referee for these top journals. He has been an invited speaker at a number of international conferences and workshops. He has been a principal investigator on a FoRST grant and a principal investigator on two Marsden Fund grants.

Since 1997, five PhD students completed under Alfred as Chief Supervisor and another one is currently completing. During this period he was second supervisor for another five successful PhD candidates. He has also supervised quite a number of Masters and honours theses and dissertations.

Alfred has taken a number of administrative and leadership roles at the University of Waikato. He was the Acting Chairperson of the Department of Mathematics and Statistics in the second half of 1993. After the Department of Mathematics was formed in 1996, he was a joint Chairperson of the new department in the first three years of its life. He was Acting Chairperson again in the first half of 2005. He has been Graduate Adviser in the department and for a number of years was the School representative on the Higher Degrees Committee.

His service to the external mathematical community included being the chief examiner in applied mathematics for the NZ University Entrance Scholarship exam during 1981–1983. He was also assistant examiner for the Bursaries examination during this period. At one stage, he was a mentor for the Mathematics Olympiad programme. He was a NZ Mathematical Society Council member in the period 1987–1990. More recently, he was the Convener of the 2005 Australian and New Zealand Industrial and Applied Mathematics annual conference.

Alfred and Fiona have two children; a son and a daughter. Fiona is well known for her food columns. Alfred's hobbies include French literature and fine wine. (The fine food to go with the fine wine comes from Fiona!)

Though retired, Alfred is still active in mathematics. He is seen almost daily and is keeping an eye on his PhD student. Last year, he taught a graduate course in fluid mechanics.

We wish Alfred well in his retirement, but look forward to his continued presence in the department.

Stephen Joe

local news continued...

Russell Higgs (University College Dublin, President of the Irish Mathematical Society), "A (very) gentle introduction to quantum computing"

Richard Barker "A simple Gibbs sampler for calculating posterior model probabilities using MCMC output from independently fitted models"

Julie Legler (St Olaf College, Minnesota), "Collaborative Research with Undergraduates: Kiwi Accents and Burden of Disease"

Christian Apeltauer (Institute of Geosciences, Universität Tübingen), "Mathematical investigations of air water interfaces"

Melanie Bell (Department of Preventive and Social Medicine), "Small Sample Properties of Longitudinal Poisson Models or What I did on my sabbatical"

Jonni Bidwell "Connections Between Group Theory and Cryptography"

Colin Fox (Department of Physics), "No-think MCMC"

Lenette Grant

UNIVERSITY OF WAIKATO

DEPARTMENT OF MATHEMATICS

We congratulate Nick Cavenagh on being awarded the annual Kirkman medal from the Institute of Combinatorics and its Applications. This medal is awarded to combinatorialists within four years of receiving their PhD. More details about this medal may be found at `http://en.wikipedia.org/wiki/Kirkman_medal`

Last December, Nick attended the Fourth International Conference on Combinatorial Mathematics and Combinatorial Computing held at the University of Auckland. At this conference he gave a talk titled "Transversals in Cayley tables of cyclic groups". In January, he spent two weeks working with collaborators at the University of Queensland.

There was a number of other travellers in the department. This included our other new staff member, Yuri Litvinenko, who spent about two weeks in the US at the end of January. Some more information about Nick and Yuri may be found in the New Colleagues section of this Newsletter.

Ernie Kalnins went to the NZIMA/NZMRI Summer Workshop on Algorithmic Information Theory, Computability and Complexity held in Napier in early January. Then in early February he attended a Mathematical Physics Workshop in Coolangatta where he presented a talk titled "Models of quadratic quantum algebras and their relation to classical superintegrable systems".

Two other staff members were in Australia in February as well. Stephen Joe attended the third High-Dimensional Approximation Workshop in Sydney where he gave a talk titled "Determining the rank of a lattice rule". As part of his study leave, Ian Craig worked with collaborators for about a month at the University of Sydney. Ian will also be making a trip to Dundee to work with collaborators there.

Also on study leave in the first half of 2009 is Kevin Broughan. He is currently visiting the US and Mexico where he is spending about four weeks working with collaborators. Later on, he will make a separate trip to Sydney.

Tim Stokes has been prevailed upon to continue being Chairperson of Department until at least the end of the year.

Seminars

Y. Litvinenko "Estimating the size of the cosmic-ray halo using particle distribution moments".

Stephen Joe

VICTORIA UNIVERSITY OF WELLINGTON

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

As foreshadowed in Newsletter 104 (December 2008), this is the first news report from the newly-formed School of Mathematics, Statistics and Operations Research (MSOR) at VUW, `http://msor.victoria.ac.nz/`. The new School, headed by Megan Clark, came into existence on 1 January 2009. Our birth was pretty painless, following the split of the old School of Mathematics, Statistics and Computer Science into two new Schools: MSOR and the School of Engineering and Computer Science. Both children seem to be doing fine, although we're definitely not looking or acting like identical twins ...

View from the School of Mathematics, Statistics and Operations Research. The NZSA conference will be held here later in the year. (Photo by Dean Pemberton - licensed under the Creative Commons Attribution ShareAlike 2.5 License).

To celebrate the new School, a series of MSOR Colloquium talks are being organised by the Deputy Head of School, Geoff Whittle. These talks are intended to demonstrate the breadth and diversity of the interests of members of the school, and should be accessible to a broad audience. The inaugural talk was on Friday 20 March 2009, given by Richard Arnold. Richard spoke to a packed lecture theatre about "Measuring tectonic stresses from earthquakes and Forecasting the Election night result on television". Further talks already planned for this series, before mid-year, will be given by Rod Downey (8 May 2009, "When does a problem have a solution: A logician and computability theorists view") and Mark Johnston (29 May 2009, "Insight from Visualisation in Combinatorial Optimisation"). More information, including a flyer, is available from: `http://msor.victoria.ac.nz/Main/MSORColloquia`.

The School is very pleased to have secured four recent faculty appointments; three in Mathematics and one in Statistics. Nokuthaba Sibanda took up a post as a Statistics Lecturer on 1 January 2009, moving out of the consulting statistician role that she had been active in since joining VUW in mid September 2007. Nokuthaba has research interests in statistical genetics, Bayesian statistics, statistical quality control, and biomedical statistics. Hung Le Pham joined us as a Mathematics Lecturer on 1 February 2009. Hung has research interests in functional analysis, in particular Banach algebras and abstract harmonic analysis. Byoung Du Kim (BD) joined us as a Mathematics Lecturer in August 2008; BD's research area is number theory with a focus on Iwasawa theory. Our final 'new' appointment is actually a home-grown success: Dillon Mayhew returned to VUW as a Mathematics Lecturer on 1 January 2009. Dillon passed on the following biographical notes:

"Dillon arrived in the department as an undergraduate in 1995, and shows no signs of leaving any time soon. An Honours course run by Geoff Whittle kindled his interest in matroid theory and a Masters degree with Geoff followed shortly after. In 2002 he started his doctoral degree at Oxford University with Dominic Welsh, the author of the first textbook on the subject. 2006 saw his return to New Zealand and the commencement of a FRST Science & Technology post-doctoral fellowship (at VUW), which he managed to parlay into a lectureship at the beginning of 2009. His research interests include structural matroid theory and related areas of discrete mathematics, such as graph theory and complexity theory. He is also involved in a series of outreach sessions with the Wellington Mathematics Association, and enjoys the challenge of telling high-school students about the halting problem and public-key cryptosystems."

Mathematics

The School recently gave some additional financial aid to support a visit and public lecture by Prof Bernard Chazelle (Princeton University), sponsored by NZIMA. Bernard's talk, "What an iPod, a Flock of Birds, and DNA have in common ...", was on Wednesday 18th March 2009. In it he argued, "that the years ahead will usher in the era of the 'Algorithm', a notion that might prove just as disruptive in this century as the revolution in the physical sciences was in the last century."

Rob Goldblatt is on Research and Study Leave (RSL) for the first half of 2009, while Mark McGuinness is away for the whole year, again on RSL (and currently in Limerick, Ireland). Geoff Whittle hosted Bert Gerards (CWI, Amsterdam) and Jim Geelen (University of Waterloo, Ontario) for three weeks to work on matroid problems. Rod Downey received a well-deserved VUW Award for Research Excellence on 25 March 2009. Rod was also very recently appointed as Chair of the Mathematical and Information Sciences panel of the Marsden Fund for 2009; hence Rod is one of the ten members of the Marsden Fund Council this year.

In March Rod Downey gave a talk called "Algorithmic Randomness and Complexity" to the James Cook and Rutherford Foundation Dinner at the Wellington Town Hall, while in June he will be giving an invited lecture at the 11th Asian Logic Conference (ALC2009, Singapore), followed by another invited lecture at the Randomness meeting in Luminy in July. Rod's PhD student Keng Meng Ng (Selwyn) has recently heard that he has been offered a postdoc at University of Wisconsin-Madison. Selwyn will be giving an invited 45 minute talk at the special session on relative computability at the conference "Computability in Europe" this July in Heidelberg, as will George Barmpalias, one of Rod's current postdocs. Another of Rod's postdocs, Laurent Bienvenu, won the 2008 Gilles Kahn Specif prize for the best thesis in computer science in France (announced late last year).

Towards the end of 2008, Matt Visser won an FQXi mini grant (US$10,000) to bring overseas researchers to New Zealand in 2009 to give seminars to the VUW general relativity group and do further work with Matt. Thomas Sotiriou, postdoc at the University of Maryland and Silke Weinfurtner, postdoc at the University of British Columbia were both here at the same time, visiting from 28 January to 19 February 2009. Gil Jannes, graduate student at the Astrophysics Institute of Andalusia, Spain, overlapped with Thomas and Silke by one day, visiting from 18 Feb to 26 Mar. All three presented technical seminars (see below) on aspects of general relativity. Matt also used his FQXi grant to cover some of the costs related to Lydia Philpott's seminar (on 23 February; see below) as well.

Frank Kane, MSOR's 2009 New Zealand Science, Technology and Mathematics Teaching Fellow, has been settling in nicely. As well as giving a seminar at the School in March (see below), Frank also attended the Mathematics in Industry Study Group in Wollongong, Australia, where he was part of a team looking at modelling the slumping of steel rolls. During the rest of 2009 Frank will (continue to) attend courses in applied mathematics and operations research at Victoria, talk to applied mathematicians and scientists here and at other institutions in the Wellington region and pursue some case studies. Frank's primary contact in MSOR is Peter Donelan. If you would like to find out how the project is progressing then please read more on Frank's blog: `http://www.whereisthisstuffused.blogspot.com/`.

Statistics and Operations Research

Ted Ralphs from Lehigh University (USA) visited us for two talks in January 2009, which Mark Johnston organised. Ted was the ORSNZ Visiting Lecturer for 2009 and he took some amazing photographs during his trip around New Zealand in a campervan; see `http://coral.ie.lehigh.edu/~ted/sabbatical/`. Mark recently received funding to offer a Vice Chancellor's Strategic Research Doctoral Scholarship for a PhD student to study 'Particle Swarm Optimization for Image Recognition' - Mark would be very pleased to receive applications for that funding, before 15 May - see `http://msor.victoria.ac.nz/Main/MarkJohnston`.

Dong Wang spent some of the summer working in Australia, and was in Melbourne around the time the bush fires struck. Dong said that the air felt almost unbelievably hot, and he was very glad to get back to Wellington's somewhat cooler (but pleasant!) summer. Ivy Liu traveled through the US quite a bit over Christmas 2008 and through January 2009. Among other things, Ivy attended the winter workshop on Semiparametric Methodology held in Gainesville, Florida, 8-10 January 2009. Ivy's PhD student Thomas Suesse successfully defended his PhD at his viva on 4 March. This makes Thomas the first student who will obtain a PhD from the School of Mathematics, Statistics and Operations Research: no doubt the start of a long and distinguished line! Well done Thomas. In fact Thomas had started work as a postdoc, in Sydney, before getting his doctorate - he flew back over to NZ for the viva, and is enjoying the fact that he now gets paid for doing his research.

Some of our other Postgraduate students have been winning scholarships for financial support recently, with Vidette McGregor and Ray Tobler each winning awards. Vidette won a Ministry of Fisheries Postgraduate Scholarship in Quantitative Fisheries Science to support her thesis on Modelling of Fish Populations and Ray won a Victoria Graduate Award to support his studies in statistics and quantitative genetics. Congratulations to them both. In other news from our students, Lisa Lankshear worked at Monitoring and Evaluation Research Associates (MERA) over the summer, between years 1 and 2 of her MSc. In international sporting news, Clare McCaul was briefly away from her Applied Statistics postgraduate studies to represent New Zealand in the Black Jacks bowls team, contesting the Trans Tasman test series (March 11 to 15) against Bowls Australia. Go Clare!

Some details of a forthcoming conference make up the remainder of our news for this issue. MSOR will be hosting the 60th Annual Conference of the New Zealand Statistical Association, with John Haywood the Conference Chair. Final details are still being confirmed, but the dates will be Wednesday 2 and Thursday 3 September, with a one-day workshop on Semiparametric Regression, to be given

by Prof Matt Wand (University of Wollongong), preceding the conference on Tuesday 1 September. Website: `http://msor.victoria.ac.nz/Events/NZSA2009`. Contact: John.Haywood@msor.vuw.ac.nz

There will be a few plenary sessions, including one by Matt Wand on "Semiparametric Regression and Variational Approximations" and one as an information session on future developments for the Australian and New Zealand Journal of Statistics (ANZJS). Among other topics, the implications of the Joint Venture publication model (between NZSA and SSAI) will be discussed in the latter session, which will be chaired by Ian Westbrooke (NZSA Publications Group member, and DOC, Christchurch). The ANZJS session will include a contribution from the new Managing Editor of the journal, Prof Steve Haslett (Massey University). Following the recent tradition, which was started when the NZSA Conference was last in Wellington in 2004, we will again be having a Statistical Education Session. This is being organised by Mike Camden (NZSA Education Committee, and Statistics New Zealand, Wellington). Further information, about the conference and the pre-conference workshop, will be made available in due course via the conference website.

Prof. Matt Wand (University of Wollongong) - Plenary speaker at the NZSA 2009 Conference and the pre-conference workshop presenter.

SEMINARS

Ada Barlatt (University of Michigan), "Models and Algorithms for Workforce Allocation and Utilization"

George Allan (Portsmouth University, England), "Engaging Our Students by Linking Enquiry-Based Learning, Learning Journals and Reflective Thinking"

Ted Ralphs (Lehigh University), "On the Value Function of a Mixed Integer Linear Program"

Ted Ralphs (Lehigh University), "Mixed Integer Bilevel Programming"

Partha Chaudhuri "Technology Transfer by Design"

Thomas Sotiriou (University of Maryland), "Modified gravity: why and how?"

Silke Weinfurtner (University of British Columbia), "Emergent spacetimes"

Thomas Sotiriou (University of Maryland), "More on f(R) gravity"

Lydia Philpott (Imperial College), "Causal Set Theory"

Uwe Reyle (IMS, University of Stuttgart), "Discourse Representation: An Introduction and Application to Temporal Reference"

George Barmpalias (VUW), "Computability and Randomness"

Mike Meylan (University of Auckland), "Generalised Eigenfunction Expansions"

Stephen Haslett (Massey University), "Parallels between fixed and mixed parameter linear models"

Gil Jannes (Astrophysics Institute of Andalusia, Spain), "Quasinormal modes in BEC acoustic black holes"

Frank Kane (NZSTM Teaching Fellow at VUW), "NCEA meets MSOR"

Gil Jannes (Astrophysics Institute of Andalusia, Spain), "Sensitivity of Hawking radiation to superluminal dispersion relations"

Lastly a whimsical limerick from someone who should be known simply as "Rowan".

There was once a(/) Professor named Mark,
Who went to Ireland for a lark.
With reckless abandon,
He swam down the Shannon
And lectured on maths to a Shark.

John Haywood

WELLINGTON STATISTICS GROUP

The Wellington Statistics Group (WSG), a local group of the New Zealand Statistical Association (NZSA), continues to meet quite regularly. The group recently heard from Brian Easton and Ryan

You, whose talk stimulated a lively discussion (and possibly some bets on the side):

2 February 2009: Brian Easton and Ryan You, Honorary Research Fellow & Statistician, SHORE, Massey University. "Measuring Gambling Experiences of New Zealanders"

In addition to the above, WSG members were invited along explicitly to the following seminars:

14 November 2008, at Victoria University: Tho mas Lumley, (University of Washington, Seattle), "Robustness of efficiency in semiparametric models for incomplete data"

13 November 2008, at Statistics New Zealand: Thomas Lumley, (University of Washington, Seattle), "Analysis of complex samples in R"

7 November 2008, at Victoria University: Geoff Bascand, (NZ Government Statistician), "Measuring New Zealand's Progress: An Integrated Approach to Official Statistics"

23 October 2008, at Victoria University: Byron Morgan, (University of Kent, UK), "Recent Developments in Statistical Ecology"

We also have a talk coming up on April 2 by Ross Ihaka (University of Auckland), "R: Past and Future History". Ross recently won the Pickering medal (for 2008) for being one the originators of R (for more details on that story, see `http://royalsociety.org.nz/Site/news/media_releases/2008/honours08full.aspx#90569-36`.

Further details (abstracts, etc) of these and all previous talks can be found on the NZSA Local Groups web page: `http://nzsa.rsnz.org/local_groups.shtml`. That 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.

Wed very much like to hear from anyone in the Wellington region who would be keen to take over the WSG Convenors role from David Harte. David will be in Japan for a few months in the middle of 2009, and it would be good to arrange for someone to take over from David soon.

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

INDUSTRIAL RESEARCH LIMITED

From June to December 2008, we hosted two French stagaires, Fanny Charpentier from Lyon, and Clement Gosselin, from Bordeaux. Both Fanny & Clement are 3rd year mechanical engineering students. Fanny worked with Warwick Kissling on modelling of the brittle/ductile transition in the rocks below the Taupo Volcanic Zone, while Clement worked with John Burnell on modelling of fracture flow in geothermal systems.

Aruna Awasthi attended the International Symposium on Surface Science and Nanotechnology held at Tokyo (ISSS-5 conference) November 9-13, 2008. Her paper, "Impacts with Initial Rotation in Nanocluster Deposition", appears in e-J. Surf. Sci. Nanotech. Vol. 6 (2008) 307-311.

Philip Zhang visted Prof. Axel Voigt in Technical University of Dresden (TUD), Germany, Jan. 2009. His group has developed a C++ software package called AMDiS(Adaptive Multi-Dimensional Simulations), aiming at solving PDEs arising from the material science with adaptive mesh.

ANZIAM 2009: Graham Weir, Sione Paea, and Philip Zhang attended ANZIAM 2009 between 1-5 Feb, held in Coloundra, on the coast and about 80km north of Brisbane. Graham gave an invited talk entitled "New developments in mathematical models of geothermal fields", Sione's talk was entitled "A kinetic Monte Carlo algorithm for nanocrystal growth", and Philip's talk entitled "Some analytical results on the effective slip boundary conditions". About 120 people attended the meeting.

AMN4: AMN4 was held in Dunedin, between 8 - 11 Feb, and attended by Aruna Awashti, Brent Walker, Nicola Gaston, Bridget Ingham, Christian Dotzler, Graham Weir and Shaun Hendy. Their talks:

Shaun "Carbon Nanotubes as Nanocapillaries" (Dimitri Schebarchov as co-author)

Aruna "Thermal behavior of bimetallc Cu-Ni clusters"

Brent "Molecular dynamics studies of semiconductor nanoparticle interactions"

Christian "In situ synchrotron study of strain development during the formation of nanoporous gold by dealloying"

Bridget "Size-dependence of palladium hydride nanoclusters: an in situ synchrotron x-ray diffraction investigation"

Nicola "Hydrogen adsorption and surface Pourbaix diagrams of model tungsten carbide surfaces"

Graham "The role of geometry and surface tension in nano-scale impacts"

(Christian is a post-doc at the Stanford Synchrotron Radiation Lightsource (SSRL)" and is supervised by Bridget.)

Bridget hosted Mike Toney from SSRL for two days after the AMN-4 conference. Mike also gave a seminar to the Energy and Materials group.

In February we were joined by Rajiv Chaturvedi. His interests lie in the area of mathematical modelling, and implementing them in software. He has earlier researched on fluid flow problems, computational biology, and a bit on environmental economics. The multiscale modelling problems that our group is involved in has got him very interested.

Kit Withers

New Colleagues at the University of Waikato

Dr Nick Cavenagh

Dr Nick Cavenagh has recently become a Lecturer in Mathematics at the University of Waikato. He was awarded a PhD in Pure Mathematics from the University of Queensland, Australia, in October 2003. Since then he has worked as a postdoctoral research fellow at Charles University (Czech Republic), the University of New South Wales (Australia) and Monash University (Australia). His chief research interests are latin squares, latin trades and graph decompositions which are topics within combinatorics. Latin trades in particular have connections to geometry, topological graph theory, group theory and finite field theory. Dr Nick Cavenagh was awarded a Kirkman medal in 2008 from the Institute of Combinatorics and its Applications.

Dr Yuri Litvinenko

Other kids wanted to become doctors and train conductors when they grew up, but Yuri Litvinenko dreamed about being a Senior Lecturer in Applied Mathematics. He has recently fulfilled this dream by joining the Department of Mathematics at the University of Waikato.

Yuri has an undergraduate degree in Engineering from Moscow Institute of Physics and Technology, a Candidate of Sciences degree in Astronomy from Moscow State University (Russia), and a PhD in Physics from the University of New Hampshire (USA). Most recently, he worked as a Research Associate Professor at the University of New Hampshire. Yuri's research interests include magnetohydrodynamics and kinetics of astrophysical plasmas, with a focus on solar activity and killer electrons.

Stephen Joe

NOTICES

Minutes of the 34th Annual General Meeting

5.00pm, Thursday 11 Dec 2008, University of Canterbury

Present: Boris Baeumer, Rick Beatson (Chair), Igor Boglaev, John Butcher, Marston Conder, Peter Donelan, Allison Heard, Stephen Marsland, Robert McLachlan, Rua Murray, Ken Pledger, Charles Semple , Tammy Smith, Winston Sweatman, Chris Tuffley, Graeme Wake, David Wall.

1. *Apologies:* None.
2. *Minutes of 2007 Colloquium business meeting:* The minutes were accepted (moved Beatson, seconded Pledger, carried).
3. *Matters arising from the minutes:* None.
4. *Report on the 2007 Colloquium:* Peter Donelan reported that the 2007 joint AMS-NZMS meeting was well attended and successful; this was endorsed by the business meeting. The 2007 meeting made a small deficit and a float of $3244+GST was passed to the 2008 organisers.
5. *Report on the 2008 Colloquium:*
   - the current joint AustMS-NZMS convention has 303 registrants, including 10 plenary lecturers, more than 50 students, and over 250 speakers
   - the organising committee extended thanks to the organisers of the 16 special sessions
   - the meeting is expected to break even or record a small surplus
   - the sponsorship of the AustMS, University of Canterbury Dept of Maths&Stats, NZIMA, NZMS and several publishers (listed in the abstract booklet) was gratefully acknowledged
6. *Forthcoming colloquiua:* The six-year "Petersen cycle" was discussed. Massey Albany should be included to make a seven year cycle (Sweatman). The following schedule was approved:

(2009) University of Auckland **or** Massey, Albany (to be determined by the two institutions)
(2010) University of Otago
(2011) Massey, Albany **or** University of Auckland

7. *General business:* The large volume of work involved in organising the Colloquium was discussed, and it was suggested that the NZMS assume more responsibility for the organisation (Murray, Wall). Suggestions include: an office holder responsible for annual meetings; embedding Colloquium finances in NZMS finances; obtaining GST registration; provision of additional financial support to local organising committee to recover admin costs. Discussion of options followed. This year's committee will write to the NZMS council with some of these suggestions. Further, it was moved from the chair that future joint meetings with other Societies have written agreements before the organisation commences. Such agreements should detail: financial contribution from each society and what it is to cover, number of speakers invited by each society, scope of local committee vs. steering committee responsibility.
8. *Next meeting:* To be held in Auckland, at the 2009 NZ Mathematics Colloquium.

The meeting closed at 5.21pm

Nominations for the 2009 NZMS Research Award

This annual award was instituted in 1990 to foster mathematical research in New Zealand and to recognise excellence in research carried out by New Zealand mathematicians. Recipients to date have been John Butcher and Rob Goldblatt (1991), Rod Downey and Vernon Squire (1992), Marston Conder (1993), Gaven Martin (1994), Vladimir Pestov and Neil Watson (1995), Mavina Vamanamurthy and Geoff Whittle (1996), Peter Lorimer (1997), Jianbei An (1998), Mike Steel (1999), Graham Weir (2000), Warren Moors (2001), Bakhadyr Khoussainov (2002), Rod Gover (2003), Eamonn O'Brien (2004), James Sneyd and Robert McLachlan (2005), and Mick Roberts and Robert Aldred (2006), Ernie Kalnins (2007) and Mike Hendy (2008).

Call for Nominations

Applications and nominations are invited for the NZMS Research Award for 2009. This award will be based on mathematical research published in books or recognised journals within the last five calendar years: 2004-2008. Candidates must have been residents of New Zealand for the last three years. Nominations and applications should include the following:

Name and affiliation of candidate. Statement of general area of research. Names of two persons willing to act as referees. A list of books and/or research articles published within the last five calendar years: 2004-2008. Two copies of each of the five most significant publications selected from the list above. A clear statement of how much of any joint work is due to the candidate.

A judging panel of three persons shall be appointed by the NZMS Council. The judges may call for reports from the nominated referees and/or obtain whatever additional referee reports they feel necessary. The judges may recommend one or more persons for the award, or that no award be made. No person shall receive the award more than once. The award consists of a certificate including an appropriate citation of the awardee's work, and will be presented (if at all possible) at the New Zealand Mathematics Colloquium Dinner in 2009.

All nominations (which no longer need to include the written consent of the candidate) and applications should be sent by 17 July 2009 to the NZMS President, Professor Robert McLachlan, Institute of Fundamental Sciences, Massey University, Palmerston North Campus, Private Bag 11222, Palmerston North 5301, New Zealand.

Please consider nominating any of your colleagues whose recent research contributions you feel deserve recognition!

Nominations for the 2009 NZMS Early Career Award

This award was instituted in 2006 for early career New Zealand mathematicians. Recipients to date have been Noam Greenberg and Catherine McCartin (2007) and Barbara Holland (2008).

Call for Nominations

Applications and nominations are invited for the NZMS Early Career Award for 2009. Criteria for eligibility are the same as for the Marsden fast start grants. Essentially, this means that applicants must be within seven years of confirmation of PhD with an allowance made for extenuating circumstances. The candidate will be judged on their three best papers and a two-page CV. The papers should be published or in press. In cases of joint authorship, a clear statement of the mathematical contribution of the candidate should be made. The candidate will have completed a significant part of their research within NZ. They would also normally be expected to be a member of the NZMS.

A judging panel shall be appointed by the NZMS Council. No person shall receive the award more than once. The award consists of a certificate including an appropriate citation of the awardee's work, and will be presented (if at all possible) at the New Zealand Mathematics Colloquium Dinner in 2009.

All nominations and applications should be sent by 17 July 2009 to the NZMS President, Professor Robert McLachlan, Institute of Fundamental Sciences, Massey University, Palmerston North Campus, Private Bag 11222, Palmerston North 5301, New Zealand.

Nominations for the 2010 ANZIAM Medal

The first award was made at the 1995 ANZIAM conference. Previous winners of the ANZIAM Medal are: 1995 Professor Renfrey B. Potts (University of Adelaide); 1997 Professor Ian H. Sloan (University of New South Wales); 1999 Professor Ernest O. Tuck (University of Adelaide); 2001 Associate Professor Charles E.M. Pearce (University of Adelaide); 2004 Professor Roger H.J. Grimshaw (University of Loughborough, previously Monash University); 2006 Professor Graeme C. Wake (Massey University Albany, Auckland); 2008 Professor James M. Hill (University of Wollongong). More information is on `http://www.anziam.org.au/The+ANZIAM+medal`.

Call for Nominations

A search is underway to identify nominees for the 2010 ANZIAM Medal, and nominations should be forwarded in confidence to the Chair of the Selection Panel, Professor Graeme Wake by the end of October 2009 at g.c.wake@massey.ac.nz. This is the most prestigious award for Industrial and Applied Mathematics awarded by ANZIAM.

Nominees should have given outstanding service to the profession of Applied Mathematics in Australia and/or New Zealand through their research achievements and through activities enhancing applied or industrial mathematics or both. The person nominated must be a long-term member and valuable contributor to ANZIAM and/or its predecessor, The Division of Applied Mathematics of the Australian Mathematical Society. A full curriculum vitae of the nominee should be sent along with a supporting statement.

Application for Graduate Membership, Accredited Membership, and Fellowship of the New Zealand Mathematical Society

The Society has an accreditation scheme in which there are Fellows, Accredited Members, and Graduate Members of the NZMS. Applications are considered by the Accreditation Committee, set up by the NZMS Council. Full details are available together with an application form on the internet site: http://www.math.waikato.ac.nz/NZMS/accreditation.html. At present Member applications are welcomed at any time. If you would like to be considered or would like to nominate someone, please send completed forms to

The Accreditation Secretary
Professor Gaven Martin
Institute of Information and Mathematical Sciences
Massey University
Private Bag 102 904
North Shore Mail Centre 0745
AUCKLAND

Officers of the New Zealand Order of Merit

Professor Michael Donald Hendy, ONZM

In the 2009 New Year's Honours List Professor Hendy was made Officer of the New Zealand Order of Merit for services to mathematical biology. Professor Hendy was a founder and co-director of Massey's Allan Wilson Centre for Molecular Ecology and Evolution whose work in mathematical biology has attracted international attention for more than 40 years. His research focuses on modelling natural and biological processes using applied mathematical techniques and tools. He has contributed widely to professional organisations and professional journals as a writer and editor, and was made a fellow of the Royal Society of New Zealand in 2001.

Associate Professor Willian Dean Halford, ONZM

Dr Halford has been at Massey since 1964 and prior to that was a junior lecturer at the Palmerston North University College. He was head of the Department of Mathematics from 1995-97 and deputy head of the Institute of Fundamental Sciences from 1997 until his retirement in 2006. Since then he has returned to the University contract teaching mathematics for a semester in each of the past two years. Dr Halford was heavily involved in educational administration nationally, at government level and in Manawatu, as chair of Awatapu College board of governors and president of the Secondary School Boards Association. He is made Officer of the New Zealand Order of Merit for services to education.

Corrections to the Previous Edition

Here we include two corrections to the previous edition of the NZMS newsletter, (Edition 104, December 2008).

The first correction refers to the "Minutes of the 34th Annual General Meeting" entry in the notices section of the newsletter (page 32). The apologies should have read: "Apologies were received from Kevin Broughan, David Gauld, Stephen Joe and Gaven Martin."

The second correction refers to the "Report of the ANZMC2008" in the conferences section of the previous edition (page 28). In the report it was claimed that the 303 attendees at last year's Convention comprised the largest ever meeting of mathematicians in New Zealand. We are grateful to Garry Tee for alerting us to the fact that the first joint Aust-NZ Mathematics Convention (held in Christchurch in 1978) had 475 delegates - still the record holder! Please see Garry's article "Twentyfive years of New Zealand mathematics colloquia", NZJM vol 21 (1992), pages 145-160.

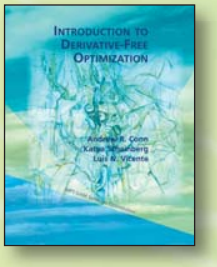
CONFERENCES

FORTHCOMING EVENTS IN THE MATHEMATICAL SCIENCES

- 17 March 2009, University of Auckland:
  Public lecture by Bernard Chazelle (Princeton University), on Algorithms
  See `http://www.cs.auckland.ac.nz/news/index.php?item=429`
- 6-10 July 2009, University of New South Wales, Sydney, Australia:
  First Pacific Rim Mathematical Congress
  See `http://www.primath.org/prima2009/`
- 29 September - 2 October 2009, at Palmerston North:
  Biennial Conference of the NZ Association of Mathematics Teachers
  "Pi in the Sky: Extending Mathematical Horizons" (NZAMT11)
  See `http://www.nzamt.org.nz/nzamt11/`
- 8-10 December 2009, at Albany (North Shore City):
  Annual NZ Mathematics Colloquium, Massey University's Albany Campus
  Further details awaited
- 3-10 January 2010, at Hanmer Springs:
  Annual NZMRI/NZIMA Summer Meeting, this time with the theme of
  "Groups, Representations and Number Theory"
  See `http://www.math.auckland.ac.nz/wiki/2010_NZMRI_Summer_Workshop`

New Titles in Applied Math from SIAM

www.siam.org/catalog



Introduction to Derivative-Free Optimization

Andrew R. Conn, Katya Scheinberg, and Luis N. Vicente

This book is the first contemporary comprehensive treatment of optimization without derivatives. It explains how sampling and model techniques are used in derivative-free methods and how these methods are designed to efficiently and rigorously solve optimization problems. Although readily accessible to readers with a modest background in computational mathematics, it is also intended to be of interest to researchers in the field.

2009 · xii + 277 pages · Softcover · ISBN 978-0-898716-68-9
List Price $73.00 · SIAM Member Price $51.10 · **Order Code MP08**

Assignment Problems

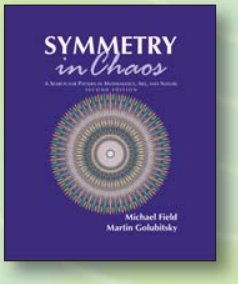
Rainer Burkard, Mauro Dell'Amico, and Silvano Martello

This book provides a comprehensive treatment of assignment problems from their conceptual beginnings in the 1920s through present-day theoretical, algorithmic, and practical developments. Topics covered include bipartite matching algorithms, linear assignment problems, quadratic assignment problems, multi-index assignment problems, and many variations of these problems.

2009 · xx + 382 pages · Hardcover · ISBN 978-0-898716-63-4
List Price $110.00 · SIAM Member Price $77.00 · **Order Code OT106**

Symmetry in Chaos: *A Search for Pattern in Mathematics, Art, and Nature, Second Edition*

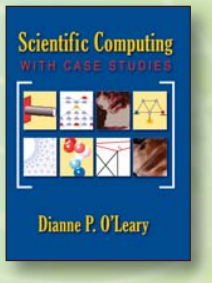
Michael Field and Martin Golubitsky



"A classic in the interdisciplinary field of art and mathematics, this very well written book takes the ingenious idea of combining symmetry with chaos to construct stunning images that anyone can enjoy, in particular mathematicians, who can also appreciate the underlying mathematics...Anyone interested in the relationship of art and mathematics should read this book."

– Nat Friedman, Director, International Society of the Arts, Mathematics and Architecture

2009 · xiv + 199 pages · Hardcover · ISBN 978-0-898716-72-6
List Price $59.00 · SIAM Member Price $41.30 · **Order Code OT111**



Scientific Computing with Case Studies

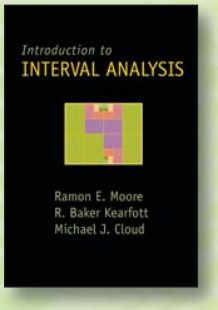
Dianne P. O'Leary

Learning through doing is the foundation of this book, which allows readers to explore case studies as well as expository material. The book provides a practical guide to the numerical solution of linear and nonlinear equations, differential equations, optimization problems, and eigenvalue problems. Nineteen case studies allow readers to become familiar with mathematical modeling and algorithm design, motivated by problems in physics, engineering, epidemiology, chemistry, and biology.

2008 · xvi + 383 pages · Softcover · ISBN 978-0-898716-66-5
List Price $92.00 · SIAM Member Price $64.40 · **Order Code OT109**

Introduction to Interval Analysis

Ramon E. Moore, R. Baker Kearfott, and Michael J. Cloud

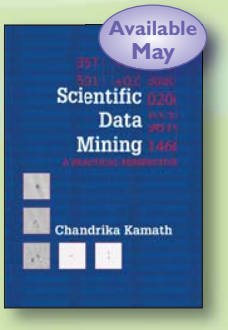


This unique book provides an introduction to a subject whose use has steadily increased over the past 40 years. An update of Ramon Moore's previous books on the topic, it provides a hands-on introduction to INTLAB, a high-quality, comprehensive MATLAB® toolbox for interval computations, making this the first interval analysis book that does with INTLAB what general numerical analysis texts do with MATLAB.

2009 · xii + 223 pages · Softcover · ISBN 978-0-898716-69-6
List Price $72.00 · SIAM Member Price $50.40 · **Order Code OT110**

Scientific Data Mining: *A Practical Perspective*

Chandrika Kamath



Technological advances are enabling scientists to collect vast amounts of data. This book describes how techniques from the multi-disciplinary field of data mining can be used to address the modern problem of data overload in science and engineering domains. Starting with a survey of analysis problems in different applications, this book identifies the common themes across these domains and uses them to define an end-to-end process of scientific data mining.

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4/09

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Address: .....
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Academic Affiliation / Official Status / Present Position:
.....

NZMS Status: Ordinary member ..... Student member .....
Other (give details) .....

Signature: ..... Date: .....

Type of assistance sought	Amount
(a) Student Travel Grant	.....
(b) Research Grant: conference/travel/other	.....
(c) Grant from South Pacific Fund	.....
(d) Conference/Workshop Organisation	.....
(e) Other (please specify below)	.....

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Estimated total expenditure: .....

Date of expenditure: .....

Other sources of assistance sought/approved (please specify below):

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- Estimated total expenditure (please include a breakdown of this expenditure, e.g. conference fees, travel, accommodation, etc.)

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- List all previous support of this kind you have received from the NZMS in the past five years. (Please note that the society has a total funding cap of $ 1000 per student over the course of their studies)

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- Please give your reasons for making this applications and the plans you have for spending the grant if your application is successful:

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- Please list any supporting documents or other evidence (attached to your application):

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- Supporting statement from Supervisor, Head of Department or person of responsibility.

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Please send this application (and any supporting documents or other evidence) to:

Dr Winston Sweatman, Secretary, NZ Mathematical Society,
Institute of Information and Mathematical Sciences,
Massey University at Albany,
Private Bag 102 904,
North Shore 0745.

The NZMS Council normally considers these applications at its meetings in July and November each year, but applications may be considered at other times in exceptional circumstances.

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- The Discrete Transforms collection has been expanded to include numerical wavelet transforms.
- CAD connectivity adds important analysis capabilities to CAD systems.
- MATLAB to Maple code translation allows you to leverage existing work.
- …and more!

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