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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 and Rachael Tappenden with the help of Phil Wilson and Pauline Auger and printed at University of Canterbury. The official address of the Society is:

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The homepage of the New Zealand Mathematical Society is:

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

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

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PRESIDENT'S COLUMN

MATHEMATICS IN NEW ZEALAND

. . . is flourishing as never before. Premier international conferences continue without a break and mathematical research in New Zealand has grown enormously:[1]

Year	# articles	Rank
1975–1979	223	46
1980–1984	342	44
1985–1999	572	35
1990–1994	892	22
1995–1999	1554	14
2000–2004	1853	13
2005–2009	2670	11

The doubling time is 8 years! So much for quantity. Quality is of course harder to measure, but I would like to draw your attention to the 22 articles [1–22] New Zealanders published in 2008–2009 in 'Top 20' pure and applied maths journals, especially Gaven Martin in the *Annals of Mathematics* and Ben Martin in the magisterial *Journal für die Reine und Angewandte Mathematik*.

MEMBERSHIP

Our membership stands at 277 which is an all-time record. I would particularly like to welcome all our new members to the society. I hope the Society will be useful to you and I look forward to your contributions and new ideas.

New Ordinary Members: Jeffrey Azzato, Paul Bernetzke, Richard Brown, Elena Calude, Sally Jo Cunningham, Andrew Ensor, Stéphane Guindon, Penelope Holland, Sergiy Klymchuk, Klas Modin, Hung Le Pham, Aarti Pillay-Nataraj, Steve Reeves, Gregg Smith, Catherine Sweatman, Bruce van Brunt, and Phillipa Williams.

New Student Members: Nafees Anwar, Penny Bilton, Clare Bycroft, Shelley Chin, Liene Daukste, Sam Fernando, Annie Gorgey, Vishal Goundar, Yousaf Habib, Xinshan Li, Christopher Lilly, Fleur McDonald, Maarten McKubre-Jordens, Wen Eng Ong, Ralf Peter, Mohammad Amer Qureshi, Matthew Randall, Blair Robertson, Manfred Sauter, Nicoline van Loenen, Shafiq Ur Rehman, Thewaporn Wrathall, Sam Zhu, and Sha Zhu.

New Reciprocal Members: Gurudeo Tularam (Australia) and Russell Higgs (Ireland).

ACTIVITIES

The Gloria Olive Student Travel Award was awarded to Shannon Li. Haydn Cooper and Clare Bycroft were also awarded travel grants. After several years of no applications to our Mathematics in Industry Study Group fund, we had a rush of applications this year and have granted travel support to Haydn Cooper, Luke Fullard, Fleur McDonald, Manara Eraki, and Syaza Latif to help them attend the MISG. We have also provided grants to the New Zealand Mathematics Colloquium, the New Zealand Mathematics and Statistics Postgraduate Conference (held just recently at Foxton Beach, attracting 57 postgraduate students), the 2010 Sir Neil Waters Lecture, and the New Zealand Journal of Mathematics.

We have arranged sponsorship of the Aitken Prize with Springer Verlag. The prize winner and those honourably mentioned will receive a Springer book of their choice. Thank you, Springer!

Derek Holton has been awarded Honorary Life Membership of the Society in recognition of his contributions to mathematics and to the NZMS over many years. Derek has returned to Australia and is

[1]Source: Web of Science. '# articles' is the number of articles with a New Zealand author that WoS has classified as 'Mathematics'. 'Rank' is the rank of the field of mathematics within all WoS articles sourced to NZ. The 2005–2009 total is incomplete and will probably top 3000. For comparison, in 2005–2009, Ireland published 2679 mathematics journal articles; Norway, 3604; Finland, 4324, and Australia, approx. 12000.

active in mathematics education issues in his retirement. He served as NZMS President from 1991–1993 and is a Fellow of the Society.

The Forder Lecturer for 2010 will be Ben Green (Cambridge University) who will tour New Zealand in September 2010. Tom ter Elst is organising his visit. The LMS has indicated that the Forder bequest has been exhausted; we have proposed in return that the scheme be expanded to include a tour of the UK by a New Zealand mathematician, the whole scheme to be funded by the NZMS and LMS, and have heard just yesterday that the LMS has agreed to operate this scheme, initially for a period of 10 years. We have also proposed to the AMS a similar scheme, of an exchange of lecturers between NZ and the US in alternate years. Their programme committee is considering the proposal.

Our constitution was amended during the year to allow our charitable and tax-free status to be secured.

NZMS AWARDS

The Aitken Prize for 2008 was awarded to Mareike Fischer of the University of Canterbury for her talk entitled *Curious properties of Maximum Parsimony in estimating evolutionary trees and ancestral sequence states*. The Early Career Award for 2008 was awarded to Barbara Holland of Massey University for *her groundbreaking work in interpreting information of historical and biological importance in comparisons of genetic sequence data, and for her pioneering development of phylogenetic networks that succeeded where simple optimisation models failed in identifying conflicts and in unmasking the more interesting biological evidence.* With Mike Hendy picking up the 2008 Research Award (see last year's report), it was a clean sweep for mathematical biology.

The Research Award for 2009 was awarded to André Nies of the University of Auckland, for *his special creativity and highly influential contributions in the area of mathematical logic and in particular its application to questions of computability, complexity, and randomness.* Winston Sweatman presented the award at the 2009 Science Honours Dinner on 18 November, with Rod Downey accepting the award on André's behalf. His book, *Computability and Randomness*, was published by Oxford University Press in 2009, and he has been invited to speak at the 2010 ICM in India.

Winston Sweatman presenting the Research Award for 2010 with Rod Downey accepting the award on behalf of André Nies.

Competition for the awards only gets hotter; I would encourage all of our members to continue to nominate strong candidates. My thanks to the awards committee for their thorough work.

OTHER HONOURS

On 14th August, Sir Vaughan Jones (Honorary Life Member since 1991) was knighted at a ceremony in Wellington.

David Vere-Jones (Honorary Life Member since 2000) has won the Campbell Award of the New Zealand Statistical Association, for *exceptional contributions to the promotion and development of statistics in New Zealand and beyond, his many contributions to statistics education at all levels, and his outstanding research and publication record.*

Rod Downey has been appointed to the Marsden Fund Council (and as convenor of its panel for Mathematical & Information Science). I am sure he will serve our interests well.

Our members Eamonn O'Brien and Andrew Pullan, both of the University of Auckland, were elected FRSNZ in 2009. This brings to 32 the number of mathematicians and statisticians who are Fellows of the Royal Society of New Zealand.

Mike Steel (Canterbury) was awarded a James Cook Research Fellowship for 2010–11, for research entitled *Mathematical foundations for inferring large evolutionary trees.*

Belated congratulations to Winston Sweatman (Massey) and Phil Wilson (Canterbury) who took out *both* first prizes in the poster competition at ECMI (European Consortium for Mathematics in Industry) 2008. And apologies to anyone inadvertently omitted from this section.

IN MEMORIAM

Mavina Vamanamurthy (retired Associate Professor of the University of Auckland) died on 6 April 2009 after a short illness. He was 74. He was a founding member of the NZMS, was elected a Fellow of the Society in 1997, and received its Research Award in 1996. An obituary appeared in Newsletter 105.

Marijcke Vlieg–Hulstmann (Massey University) died suddenly at work on 28 September 2009. She was an active and vital member of the mathematics group in Palmerston North, having had an association with Massey for over 40 years. An obituary appears in this issue. She was a member of the NZMS since 1989.

THANKS

An enormous thanks to Winston Sweatman who is stepping down as Secretary of the Society having served ably for 5 years. (He will remain on Council for another year, hopefully transferring his accumulated experience to the next officeholder!) This position is absolutely essential to the smooth running of the Society, and especially with the turnover of other officers, his long service in this position has been a valuable source of stability.

REFLECTIONS

I left New Zealand in 1985 and returned in 1994. It now turns out to have been a fortuitous time to return. The NZMRI summer workshops began at Huia in 1994, the Marsden Fund began in 1995, the NZIMA began in 2002; other CoREs also have a significant mathematical component. (It is pleasing to see the Marsden Fund award 10 grants in the MIS panel this year, up from a tragic low of 6 last year; the success rate is threatening to break into double figures!) These initiatives have allowed mathematics in New Zealand to flourish as never before and have been leveraged by many into exceptionally productive and active careers in ways that would otherwise have been much more difficult. Of course, I do believe that the benefits fall to all of New Zealand, and not just to science and to a few individuals' careers, but that can only be seen over a generation.

On the other hand, I was one of the last of those hired at the end of a decade of expansion of the universities; the following 15 years have seen retrenchment, with my own department, for example, shrinking from 18 to 11 staff. And now we are embarking on another period of change, with the non-renewal of the NZIMA, and, in the 2009 Budget, the cancelling of the TEC Doctoral Scholarships and the Education NZ Postgraduate Travel Awards. (Between them, the NZIMA and the TEC are supporting many of the mathematics PhD students in New Zealand; where will future support come from?) Teaching

unfunded students is putting a strain on many departments, and further cuts to the tertiary system are signalled for 2010. There will always be mathematics taught and researched in New Zealand, but what can we do to make sure that we see the same kind of progress in the next 15 years as in the last 15? What should be the role of the NZMS?

The NZMS is a tiny organization; apart from its intangible roles in forming and representing the NZ mathematics community, its research spend is only about $8000 a year, a minuscule fraction of the amount spent on mathematics research in this country. If it does have a value, it lies in its grants being easy to get; free from the vagaries of government policy; and available regardless of membership of a rich or poor department or of being a student of a funded or a non-funded academic. Indeed, I think there would be ample scope for the NZMS to play an **enormously** much greater role in supporting mathematics research and education in New Zealand.

How does the NZMS compare to other mathematical societies? We have an asset base that is about the same size as those of the AustMS and CMS (about NZ$0.06/capita) but that is tiny compared to the LMS and AMS ($0.50/capita). On the other hand, our expenditure ($0.0033/capita) is tiny by any standard (LMS/CMS $0.07, AMS $0.13, although the membership activities of the LMS and AMS are entangled with those of their mighty publishing arms.) Compared to other academic bodies in New Zealand (NZIP, NZIC etc.) we actually have much *greater* assets and much *lesser* expenditure. The situation is absurd.

During the year I came to believe that at some point, the NZMS faltered. Prior to 2003, it ran a tight ship and carefully spent on average 88% of its income; since 2003, it has spent on average 57% of its (non-bequest) income, and its range of activities has shrunk. If anything, 2009 was a low point, with more than 20% of our expenditure going to accountants! (We won't do it again.) A lot of my time was taken up with simply trying to understand the supposed functioning of the Society; monitoring its investments through the financial crisis; and securing our tax-free charitable status. I am stepping down after my two years as President, not exactly pleased with what I have accomplished for the Society, but, rather, more determined than ever to keep working to set it right and to help it grow, function well, and serve its members into the future.

Thank you for your support during the year.

Robert McLachlan
President

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EDITORIAL

Kia ora koutou. Welcome to this month's newsletter.

There are rumours on the grapevine of a new look website to appear shortly for the society. This will include details of the society's various awards and grants with a fresh new look for the new decade. We'd also like to draw your attention to a new course complete with scholarships (see page 30). Graeme assures us he will be sympathetic to anyone missing the deadline because of the late publication of the newsletter! Finally, we will be including a more detailed write up of the colloquium in the next edition, until then here are some photos to remind those that couldn't attend what they missed!

Left: The conference organising team which did a superb job organising such a fantastic event! (From left to right: Michelle Campbell, Winston Sweatman, Colleen Van ES). Right: (From left to right) Aitken prize-winner Shannon Ezzat (UC), Robert McLachlan, Rachael Tappenden (UC) and Winston Sweatman.

Alex James
Editor

LOCAL NEWS

AGRESEARCH

Amy Van Wey joined the group in October to begin her PhD project on modelling microbial biofilms in the human bowel. Amy is a native of Oregon, USA, and has come from a college teaching position. Amy was awarded the Earle Scholarship through the Riddet CoRE and will be working under the supervision of Tanya Soboleva.

Tony Pleasants travelled to the 55th International Conference of Meat Science and Technology in Copenhagen, Denmark, in August to present a talk entitled "Modelling the Shelf Life of Fresh Meat - Practical Experience".

Paul Shorten attended the 3rd International Conference on Environmental, Industrial and Applied Microbiology in Lisbon, Portugal, in December to present work on "Probabilistic modelling of the growth of spoilage bacteria on chilled food products".

Phuong Nguyen presented her work on "Mathematical modelling of steroid hormones synthesis in bovine feto-placental unit throughout mid- and late gestation" at the National Research Centre of Growth and Development Science Symposium in Hamilton in October.

Paul Shorten

THE UNIVERSITY OF AUCKLAND

DEPARTMENT OF COMPUTER SCIENCE

Gill Dobbie continued her rise by being promoted to Professor, the first female in CS at UoA to have that distinction, and we are told only the second female in NZ. She capped off 2009 by being appointed to HoD, which some of us consider less of a distinction for her than a punishment. Brian Carpenter has also been appointed as professor.

Mark Wilson and Andre Nies are on sabbatical this semester, among many others in the department. Mark gave talks at the Universities of Pennsylvania, Rochester, California-Berkeley, California-Davis, at Rutgers University and at Union College, and generally tried to cash in on a rare trip to large population centres.

MSc student Itamar Amith was a member of the team "Citrus Celebration" that placed 2nd in the IEEE Extreme 3.0 Programming Contest, against 700 teams from 40 countries. This involves (potentially) 24 hours of continuous work to solve 12 problems, and the team was one of only three who solved all the problems correctly. This complements the department's strong record in recent years in the ACM programming competition.

The department had good success in the Marsden Fund this year: 3 of the 4 who made it to the second round were successful: Alexei Drummond, Bakh Khoussainov/Andre Nies, and Beryl Plimmer.

SEMINARS

Alistair Moffat (Melbourne) "Against Recall: Is It Persistence, Cardinality, Density, Coverage, or Totality?"

Tim Bell (Canterbury) "The New ICT Curriculum for Secondary Schools"

Eric Roberts (Stanford) "Rediscovering the passion, beauty, joy, and awe: Making computing fun again"

Oron Shagrir (Hebrew University of Jerusalem) "Computing as Modeling"

Mark Wilson

DEPARTMENT OF ENGINEERING SCIENCE

So much has happened in the last few months, that I hardly know where to begin. There's a flood of awards and achievements (both for staff and students) to be reported, along with the usual list of seminars, PhD theses etc. So I'll keep it short and let the facts speak for themselves.

NZ's NEXT TOP ENGINEERING SCIENTIST

In September the department ran the inaugural "NZ's next top Engineering Scientist" competition. The event required teams of three or four high school students to produce a report detailing how they solved a mathematical modelling problem. The problem was revealed at 8am on competition day and students had until 5pm to submit their report. This year's problem required them to examine whether New Zealand could save enough energy to avoid building a new power station. Schools from all around the country competed, with 98 teams entering. Orion Health and Fonterra sponsored the event, enabling us to provide generous prize money.

The winning team was from Kristin School on the North Shore, while Nelson College and James

Hargest College in Invercargill produced the runners up. It was very encouraging to see nearly 400 students give up their Saturday to spend it focused on mathematical modelling.

AWARDS

Distinguished Professor Peter Hunter, former staff member of Engineering Science and director of the Auckland Bioengineering Institute has been awarded the prestigious Rutherford Medal, New Zealand's top science honour. Peter was presented the medal by the Minister of Research, Science and Technology, the Hon.Dr Wayne Mapp, at the Royal Society of New Zealand annual Science Honours Dinner in Auckland 18th November. The Rutherford Medal recognises exceptional contributions to New Zealand science and technology by a person or group in any field of science, mathematics, social science, or technology. Peter won the medal for his leading role in the Physiome Project, a major international project that aims to build sophisticated computer models of all the human body's organs.

Professor Andrew Pullan, Head of Department of Engineering Science is a newly elected fellow of the Royal Society of New Zealand. Andrew was recognised amongst peers for his work on modelling current flow in the torso for clinical applications in electrocardiography. Professor Pullan has recently extended his work to look at electrical activity of the human digestive system. Earlier this year his new project was awarded $1.3 million in Health Research Council funding.

Prof. Andrew Pullan

Somehow, this did not get reported in earlier newsletters: Associate Professor Martyn Nash has won the prestigious James Cook Fellowship to further his research into the heart and the breast. The $220,000 Royal Society of New Zealand award allows Martyn to spend two years focusing solely on his research. The fellowship is awarded to 'forward thinking' researchers who can make a significant contribution to New Zealand's knowledge base.

Assoc. Prof. Martyn Nash

Yu Sian Tan, who is one of our Part IV Engineering Science students, has won the ACENZ Practical Work Report Competition for 2009. All Bachelor of Engineering students are required to carry out practical work experience, which they then write up as reports (on each work experience). Yu Sian worked for Castalia doing financial modelling and research work on a couple of projects, and she also assisted with writing up expressions of interest and preparing documents for the project procurement process. ACENZ offers three prizes to the best Practical Work reports written by Engineering students finishing their fourth year of study. The competition is open to students in all New Zealand universities offering IPENZ accredited BE degrees. The purpose of the competition is "to encourage the next generation of consulting engineers to develop good written communication skills".

Yu Sian Tan

A team with two engineering science students, (Iain Dunning - Part III EngSci, Bojan Blazevic - Part IV EngSci), won the New Zealand Programming Competition this year: `http://nzprogcontest.org.nz`. The team ("Two and a Half Men") containing Iain and Bojan won the Tertiary - Open Category and also scored higher than everyone in the open category, including some teams from software companies.

Iain Dunning and Bojan Blazevic

PhD COMPLETIONS

Andrea Raith completed her PhD on "Multi-objective Routing and Transportation Problems". The thesis was supervised by Associate Professor Matthias Ehrgott, Dr Judith Wang of the Energy Centre and Dr Stuart Mitchell. In her thesis, Andrea analysed the performance of several bi-objective shortest path algorithms, developed the first correct algorithm for the bi-objective integer minimum cost flow problem, and studied applications in the traffic assignment problem. Her research contributes to realistically modelling cyclists' route choice. She also defines a new bi-objective user equilibrium in transportation networks which will help model traffic flow in a network when drivers are faced with factors such as travel time saving versus toll costs.

STAFF

Addie Pujji will leave us as his contract as tutor terminates. Addie has been very active in our large classes Mathematical Modelling 1 and 2 and Engineering Computing. On the other hand Peter Bier has accepted a permanent position as Senior Tutor. Peter has been with the Department for a few years. He is a dedicated teacher and has been very active in promotional activities such as the NZ's next top engineering scientist competition mentioned above.

Andrea Raith

SEMINARS

Roland Horne (Stanford University) "The future of Oil"

Dennis Huisman (Erasmus University Rotterdam) "Solving planning problems in the railway industry"

Miles Rubin (Technion – Israel Institute of Technology) "Physical reasons for abandoning plastic deformation measures in plasticity and viscoplasticity theory"

Dorit Hochbaum (University of California Berkeley) "Monotone IP formulations for clustering and image segmentation problems"

Faram Engineer "Inventory Routing"

Matthias Ehrgott

DEPARTMENT OF MATHEMATICS

Bill Barton gave a seminar in the School of Education at the University of Cambridge, in October. In December he was a Plenary Speaker at the DELTA conference in George, near Capetown in South Africa. Presentations were given there by Barbara Miller-Reilly, Greg Oates, Ivan Reilly, Judy Patterson, Moira Statham, Sepideh Stewart and Sheena Parnell. Bill has been appointed to the Board of the Centre for Advanced Applied Research in Mathematical Science at Strathmore University, in Kenya.

John Butcher was the Honorary Conference Chair and Keynote speaker at the International Conference on Computer Modelling and Simulation, held at Brno University of Technology, from 79 September, 2009. He attended the 12th Seminar

"NU-MDIFF" on Numerical Solution of Differential and Differential-Algebraic Equations, held at Martin-Luther-University Halle-Wittenberg on September 14-18. And he was an Invited Speaker at the International Conference of Numerical Analysis and Applied Mathematics 2009 (ICNAAM 2009) held at Rethymno (in Crete), on September 18-22. Many of the pioneers of numerical analysis have contribut-ed chapters to a book on "The Birth of Numerical Analysis" (World Scientific Publishing Co; 2009), with John contributing the chapter on "Numerical Methods for Ordinary Differential Equations: Early Days". Now John has developed a taste for giving distance seminars and lectures to people who might be interested. Anyone who wants to explore this possibility is invited to go to `http://jcbutche r.com` and follow the link to the Seminars and Lectures page.

Marston Conder gave an invited lecture at the B.H. Neumann Centennial (BHN100) at the Australian National University in October, and then following a brief visit to UC-Berkeley he gave an invited lecture at the American Mathematical Society's meeting at Penn State University (October 24–25), in the special session on Automorphisms of Riemann Surfaces. He also attended (and gave a lecture at) the 33rd Australasian Conference on Combinatorial Mathematics and Combinatorial Computing, at Newcastle in December 2009. Marston has been invited to join the Steering Committee of the Pacific Rim Mathematical Association, PRIMA. Also he has been having his portrait painted by Marianne Muggeridge – commissioned by the Royal Society of NZ to acknowledge Marston's term as President of the Academy of the RSNZ — and so he has had a steady flow of colleagues coming in to his office to look at its progress!

Steven Galbraith attended ASIACRYPT 2009 in Tokyo, and he is on the programme committee for the conference EUROCRYPT 2010. He has 2 new PhD students: Edoardo Persichetti (from La Sapienza, Rome) and Anastasia Zaytseva (from Lomonosov Moscow State University, Russia).

Rod Gover gave his Inaugural Lecture on "Geometry and the shape of the future", on August 13.

Sina Greenwood visited the National University of Samoa in August to begin work on a research project in collaboration with members of the NUS mathematics department. She was invited to attend the 53rd Annual Meeting of the Australian Mathematical Society at the University of South Australia (2009 September 28 – October 1), and contribute a talk to the special session on Topological and Symbolic Dynamical Systems. She spoke there on Abstract Dynamics on Continua.

Chris King joined this Department in 1969, he became a Senior Lecturer and he retired in November. At the farewell celebration James Sneyd remarked that some of Chris's less orthodox multidisciplinary publications are now receiving serious consideration, from some researchers in diverse branches of science.

Greg Oates and Judy Patterson have been invited speakers at two AMA days for teachers, and they presented a paper at the NZAMT conference in September.

Eamonn O'Brien has been elected as a Fellow of the Royal Society of New Zealand.

Maxine Pfannkuch was a Plenary Speaker at the NZAMT conference in September, Arkadii Slinko attended the conference on "Logic, Game Theory and Social Choice" conference (LGS6) at Tsukuba Japan (26-29 August), where he gave two talks: "Orders on Subsets Rationalised by Abstract Convex Geometries", with co-authors P. Bossert (Montreal) and M. Ryan (Auckland, Economics); and "Distance Rationalizability of Some Voting Rules", with co- authors: P. Faliszewski (Krakow) and E. Elkind (Singapore). And Tatiana Gvozdeva presented her joint talk on "Roughly Weighted Simple Games"(with Arkadii Slinko). On his way back he did some work in Singapore with his co-author Edith Elkind. Then he attended the conference on "Algorithmic Game Theory" at Paphos (Cyprus) on October 18-20 October), where he presented a paper on "Swap Bribery" (joint work with P. Faliszewski and E. Elkind). Next, he attended the conference on "Algorithmic Decision Theory" in Venice on October 21–22, where gave a talk on "Axioms for a Class of Algorithms of Sequential Decision Making" (with M. Agastya (Sydney)). Further, he visited Karlsruhe, where he gave an invited lecture on "Distance rationalisability of voting rules" at Universität Karlsruhe (TH) – Institut für Wirtschaftstheorie und Statistik on October 27 Then he visited St. Petersburg Institute of Mathematics and Economics of Russian Academy of Sciences and gave an invited lecture "New bounds for simple games" on November 13; and he repeated that talk in The Higher School of Economics, at The International College of Economics and Finance on November 18.

Jamie Sneddon and Judy Patterson have been awarded a Teaching Improvement Grant, for developing team-based learning in MATHS 326.

Sepideh Stewart presented talks in September at the NZAMT conference, and at the Mathematics Education session of the Australian Mathematical Society annual conference in Adelaide.

Tom ter Elst has received a Marsden grant of $465,000 (over 3 years) on Degenerate Operators.

Mike Thomas presented a paper at the NZAMT conference in September, and he was the organizer at the Mathematics Education session of the Australian Mathematical Society annual conference in Adelaide in September. Mike gave an invited workshop at the Wellington Mathematics Association HOD Day on November 20. He has been appointed as Chairman of the Survey Team on School to University Transition, for the 2012 ICME-12 conference in Seoul.

Shixiao Wang published a paper "On the nonlinear stability of inviscid axisymmetric swirling flows in a pipe of finite length", which was reported in The NZMS Newsletter 106. He was then invited to give a talk about it in the International Retreat on Vorticity Aerodynamics, held at Beijing (2009 August 22–24). He was also invited by Professor Liao at Shanghai Jiao-Tong University to give a series of lectures on his nonlinear stability theory at that university in April 2010.

The Community for Undergraduate Learning in the Mathematical Sciences (CULMS) has been founded. This is an initiative of the Mathematics Education Unit, and it is supported by a grant from the VC's Strategic Fund. CULMS has the use of Room 326, where the opening party was held on November 13. A good time was had by all, including representatives from Mathematics, Statistics, Engineering Science, CAD, and Education. A small pamphlet explaining CULMS is available in Room 326 — anyone is welcome to come and help themselves (or talk to Mike Thomas or Bill Barton).

Heiko Dietrich recently completed a PhD in Group Theory at the University of Braunschweig under the supervision of Prof. Bettina Eick. He takes up a 2-year FDRF-funded Post-doctoral Fellowship awarded to Jianbei An and Eamonn O'Brien. Kate Patterson (PhD, Montana University) joins James Sneyd's saliva secretion modelling group. Kate recently acquired her PhD on constructing a mathematical model of the lac operon, and she will spend the next 3 years working with James. Colm Fitzgerald studied at the University of Cork and received his PhD from Loughborough University. He joins Mike Meylan's research on water waves, specifically wave scattering by ice in the marginal ice zone. David Bryant's PostDoctoral Fellow Steffen Klaere has had a co-authored paper accepted in Nature. The paper was something on effective and ineffective torture methods for lab mice. Almost certainly, that makes him the first member of our Department to have a publication in Nature.

Bernhard Riemann's notorious hypothesis was published in November 1859, and consequently the Riemann Hypothesis Day was celebrated around the world on the date 18 November, 2009 (fixed arbitrarily). Those celebrations started at the University of Auckland (of course) organized by Steven Galbraith, and about 36 people from Waikato, Auckland and Albany attended the following lectures. Dr Steven Galbraith (Auckland): Introduction to the Riemann hypothesis and analogues for function fields. A-Prof. Kevin Broughan (Waikato, joint work with Dr A. Ross Barnett): The holomorphic flow of the Riemann zeta function. Dr Shaun Cooper (Massey-Albany): On the construction of modular forms. Prof. Cristian Calude (Auckland), Dr Elena Calude (Massey-Albany) & Dr Michael Dinneen (Auckland): The complexity of the Riemann hypothesis.

Eamonn O'Brien has organized 4 lectures on various aspects of group theory, given on December 16: Martin Bridson (Oxford) "Fixed-point theorems and representations of mapping class groups". Heiko Dietrich (Auckland) "On a classification of p-groups by coclass". Jianbei An (Auckland) "Controlled blocks for quasi-simple groups with odd primes" and Alan Reid (University of Texas - Austin) "Grothendieck's problem for 3-manifold groups".

Vaughan Mitchell, now HOD Mathematics at Aorere College, has been appointed as our Teaching Fellow for 2010.

The film "Between the Folds" is a documentary by Green Fuse Films directed by Vanessa Gould, about Origami - Where Art Meets Mathematics. That film has won many awards. The first screening in NZ was given on September 9 at a public lecture, introduced by Origami maven Jonathan Baxter. That event proved to be highly successful. As well as showing the movie, which was truly impressive, Jonathan Baxter displayed some lovely examples of origami, from some of the Masters of the Art.

Recent visitors include: Prof. Pierre Albin (Courant/IAS Princeton), Distinguished University Professor Rob Corless (University of Western Ontario), Prof. El Maati Ouhabaz (University of Bordeaux I), Prof. Derek Holt (University of Warwick), Prof. Cliff Konold (University of Massachusetts), Prof. Abdul Mohamad (Sultan Qaboos University, Oman), Prof. Alan Reid (University of Texas - Austin), Dr Melissa Rodd (University of London), and Dr Josef Silhan (Max Planck Institute for Mathematics, Bonn).

For the past 3 years we have been getting cohorts of young women from Malaysia - the MARA students. Bill Barton reports that recently the Faculty of Science person in charge of the MARA project gave a significant bouquet to the Department, for the way that we look after those students.

Some of those students have swapped into a Mathematics major from other planned majors, because of the way they get treated and the way that we, as a Department, handle these international students.

The following people from this Department gave talks at the New Zealand Mathematics and Statistics Postgraduate Conference in Foxton Beach, 23-26 November,2009: Sunanda Dixit 'A study of the differentiable manifold L^2_+'; Yuri Vyatkin, 'Gauss formula in conformal submanifold geometry'; Tuan-Yow Chien, 'Finite tight frames'; Tatyana Gvozdeva, 'New bounds for simple games'; Afshin Mardani, 'Two examples of non-metrisable manifolds'; Nazli Uresin, 'Topologizing a set via the behavior of a self mapping'; Manfred Sauter, 'The regular part of sectorial forms'; Matthew Randall, 'What happens when geometry out of thin air vanishes'; Alexander Melnikov, 'Five results on computable torsion-free abelian groups'; Imram Khaliq, 'A game theoretic approach to dynamic update networks'; Emily Harvey, 'Using an extra dimension to explain pulse responses to intracellular calcium dynamics'; Maryam Alavi, 'Decision theoretic approach to the analysis of self-referencing sensor networks'; Gulshad Gulshad, 'Introduction to Runge-Kutta methods'; Katie Sharp, 'Microdomain-dependence of calcium influx in a parotid acinar cell'; Annie Gorgey, 'Extrapolation of boundary value problems'; Attique Ur Rehman, 'Numerical computation of variable-stepsize schemes for explicit Runge-Kutta methods'; Yousaf Habib, 'The accuracy of composite general linear methods'; Muhammad Amer Qureshi, 'Achieving Brouwer's law for long-time simulations of outer solar system'; Wenjun Zhang, 'Travelling waves in calcium models'; Shafiq Ur Rehman, 'Detecting close approaches'; David Gauld, 'Some history of the Poincaré conjecture'. Emily, Katie and Yousaf won prizes for excellent talks.

SEMINARS

Josef Silhan (Max Planck Institute for Mathematics, Bonn) "Differential symmetries of powers of the Laplacian"

Bill Barton & Louise Sheryn "The mathematical pipeline - how does NZ compare: the cats pyjamas or a lame duck?"

Todd Dennis "Mathematics for 'movement ecology' ".

Sir Vaughan Jones "Subfactors to index 5"

Alex James (University of Canterbury) "What do spider monkeys, Peruvian fishing boats and sulking albatross have in common?"

Greg Oates "Integrated technology in the undergraduate mathematics curriculum: A case study of computer algebra systems"

Abdul Mohamad (Sultan Qaboos University, Oman) "Metrization, hyperspaces and manifolds"

Alys Clark "The nutrient environment in the ovarian follicle"

Maxine Pfannkuch "Building students' inferential reasoning in statistics: Research in progress"

Steffen Klaere "MISFITS: assigning extra mutations to a phylogenetic tree"

Cliff Konold (University of Massachusetts) "Developing statistical perception"

Ivo Siekmann "Local collapses in the Truscott-Brindley model"

Derek Holt (University of Warwick) "On Coxeter's families of group presentations"

Colm Fitzgerald "Time domain simulations for floating structures"

Melissa Rodd (University of London) "Geometry, visualisation and teaching", and "Choosing to study mathematical subjects at university or deciding not to: students tell their reasons"

Mike Meylan "Generalised eigenfunction expansions"

Steven Galbraith "Kangaroos, birthdays, card tricks and discrete logarithms"

Vivien Kirk "Boring bifurcations?"

El Maati Ouhabaz (Bordeaux I) "Heat kernels and spectral multipliers"

Matthew Randall "What happens when geometry out of thin air vanishes?"

Yuri Vyatkin "Gauss formula in conformal submanifold geometry"

Qing Zhang (Massey University) "Two-generator Kleinian groups"

Nazli Uresin "Topologising a set via the behaviour of a self-mapping"

Afshin Mardani "Two examples of non-metrisable manifolds"

Sunanda Dikshit "A study of the differentiable manifold $\mathbb{L}^2_+$"

Garry Tee

DEPARTMENT OF STATISTICS

We have welcomed several visitors and new staff to the department recently. Nick Shears joined us as a postdoctoral fellow, strengthening links between Statistics and the Leigh Marine laboratory. Nick is an Auckland graduate in marine science, and has recently completed a post-doc at the University of California, Santa Barbara.

Professor Bruce Lindsay from Penn State University is visiting for this semester, courtesy of a Distinguished Visitor Award led by Yong Wang. Bruce is internationally known for his work on mixture models. Yong will make a return visit to Penn State next year. Meanwhile, Yong's own Marsden-funded project on mixture models has gained its second consecutive postgraduate prize at the NZSA conference, this year by MSc student Keng-Hao Chang who won 3rd place against a stiff field of competition.

Professor David Matthews from the University of Waterloo is also visiting the department until June 2010, working with Chris Wild, and Professor Claudia Kirch of the Technical University of Kaiserslautern visited Renate Meyer during September.

Huge congratulations to Chris Wild for being elected a Fellow of the American Statistical Association in April. Chris is only the second statistical fellow in New Zealand. He has been zipping all over the place giving invited plenaries, including the Presidential Invited Address at the Statistical Society of Canada conference ("Building the Pyramids"), a Keynote Address at the US Conference on Teaching Statistics ("Early Statistical Inferences: The Eyes Have It"), and the Keynote at the 6th International Research Forum on Statistical Reasoning, Thinking & Learning in Brisbane ("Putting 'Context' in Context"). He is now said to be a strong contender for the International Catchy Talk Title Award for 2009.

Sharon Browning and Brian Browning are co-authors on a major international study recently published in Nature Genetics, which used a genome-wide association study to identify susceptibility to multiple sclerosis. Brian Browning is also PI for a substantial three-year grant from the US National Institute of Health Human Genome Project, entitled 'Improving genotype accuracy and haplotypic analysis for genome-wide studies'.

Congratulations to our latest PhD graduate, Dr Arier Lee, for her work on random effects models. On the topic of graduating from our department - we are currently creating a contact base for University of Auckland Statistics alumni. If that means you, please contact Karen McDonald at `k.mcdonald@auckland.ac.nz` for information.

The department's irrepressible media presence continues. David Scott appeared on TV3, dispensing tips for winning June's $35 million Biggest Big Wednesday jackpot of all time. The video can be found by googling "Ali Ikram Big Wednesday", but it seems that David's strategies were unsuccessful given that he is still coming to work. David's probabilistic analysis was supplemented by Ali Ikram's executive summary, namely, 'You've got stuff-all chance of winning'.

Rachel Fewster

AUCKLAND UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND MATHEMATICAL SCIENCES

In November-December, Neil Binnie visited the Shanghai Institute of Technology (SIT), where he taught "Quantitative Statistics for Research" to students doing a joint programme in Analytical Chemistry. This is Neil's 4th visit to SIT. Neil officially retires at the end of December, after 23 years of service at AUT and 41 years of teaching on Mathematics and Statistics.

Murray Black was elected as the acting Programme Leader of Mathematical Sciences in November, in charge of the Bachelor of Mathematical Sciences Programme and service teaching.

Recently, Jiling Cao (who is currently in his sabbatical leave) has been promoted to Associate Professor.

Jeff Hunter participated in the Wellington Workshop in Probability and Mathematical Statistics, held over the period 3-4 November, presenting an invited talk on "Coupling in Markov Chains".

Farida Kachapova returned to SCMS after a sick leave. She attended the 3rd International Conference on Science and Mathematics Education, Penang, Malaysia, 10-12 November 2009, presenting a talk and also chairing a parallel session.

The second edition of Sergiy Klymchuk's book "Counter-Examples in Calculus" was published by the Mathematical Association of America in November.

Peter Watson has resigned his role of the Programme Leader for Mathematical Sciences. He represented AUT to attend the Southern Right Delta ($\Sigma P\Delta'09$) Conference on the Teaching and Learning of Undergraduate Mathematics and Statistics,

Gordons Bay, South Africa, 29 Nov-4 Dec 2009, presenting a talk.

In Semester Two Roy Davies joined the School of Computing and Mathematical Sciences, bringing his expertise in Virtual Reality to AUT. Alex Raichev from the University of Auckland is also teaching in the School.

In October, Anuj Bhowmik, from the University of Calcutta (India), enrolled in the PhD Programme in Mathematical Sciences at AUT. Currently, he is supervised by Jiling Cao and Andrew Ensor.

In November, Seth Hall was awarded a PhD scholarship for his research into "Mobile Augmented Reality using Location-Based Information" under the supervision of Andrew Ensor and Roy Davies.

SEMINARS

Gerald H. L. Cheang (University of South Australia) "A general option pricing formula under jump-diffusion dynamics"

Paul Cowpertwait (Massey University, Albany) "A research overview and some directions for analytics"

Farida Kachapova (Auckland University of Technology) "Geometric interpretation of optimal portfolio"

Peter Watson (Auckland University of Technology) "A comparison of teacher and lecturer perspectives on the transition from secondary to tertiary mathematics education"

Jiying Yin (University of Adelaide) " Estimation in threshold autoregressive models with non-stationarity"

Jiling Cao

UNIVERSITY OF CANTERBURY

DEPARTMENT OF MATHEMATICS AND STATISTICS

In this year's Marsden and Fast Start round two applications from the department were successful. James Degnan has been awarded a Fast Start grant over three years to use primarily statistical techniques to analyse the conflicting evidence that genes give us about relationships between species. Charles Semple and Mike Steel have been awarded Marsden funding over the next three years with their intriguingly titled application "The Curse of the Unfaithful Grandparents: new mathematical tools for unravelling complex ancestry". Mike and Charles will be addressing unanswered mathematical questions concerning the reconstruction of ancestral relationships of organisms that have inherited their DNA from several ancestors. These questions range from quantifying horizontal gene transfer events in early evolution to the detailed reconstruction of recent human history.

Congratulations to Mike Steel, who is one of five New Zealand researchers to be awarded a prestigious, two-year James Cook Research Fellowship commencing in 2010. The fellowship, in the physical sciences category, is for his research entitled Mathematical foundations for inferring large evolutionary trees. These fellowships are administered by the Royal Society of New Zealand on behalf of the Government and are awarded to forward thinking researchers who will make a significant contribution to New Zealand's knowledge base. The fellowship will allow Mike to concentrate on his research for two years without the additional burden of administrative and teaching duties.

Congratulations to Douglas Bridges, who has been awarded one of only two College of Engineering Research Awards for 2009. In a Royal Society of New Zealand citation in 2000, Douglas was described as the dominant figure in constructive mathematics and an inspiration to mathematicians in the United States, Japan and Europe. Douglas has recently been in the States for two weeks, speaking at the Workshop in Constructive Mathematics, in Florida Atlantic University, and at the Workshop on Reverse Mathematics, in the University of Chicago.

Congratulations to our PhD students Michael Langton, Rachael Tappenden and Shannon Ezzat. Michael Langton successfully completed his PhD. The title of his thesis is "Radial basis functions applied to integral interpolation, piecewise surface reconstruction and animation control". Rachael Tappenden and Shannon Ezzat received Excellence Awards at the 2009 NZ Mathematics and Statistics Postgraduate Conference in November, for Best Applied Mathematics Talk and Best Pure Mathematics Talk, respectively.

Comings and goings in the department include Bill Taylor who has retired at the end of semester 2 after 30 years with the department. In his last week Bill won the UCSA College of Engineering Lecturer of the Year award. David Fortune and Pam Hurst resigned from their part-time Senior Tutor positions. Neil Watson has announced his retirement, with effect from 19 February 2010, to devote more time on the book he is currently writing and to his other interests with the local ME/CFS Group.

Igor Rychkov arrived in August to take up a 2-year appointment as a Postdoctoral Fellow, work-

ing with Rick Beatson. Igor came to us from the UK where he worked on SPH modeling of geophysical fluids and surface roughness analysis based on TLS point clouds. Prior to that, he spent some time in Australia deriving new statistical ensembles. His new project is about RBF and wavelet-based surface modeling on CUDA-GPU. Igor's interests are varied, and include soccer, windsurfing, tai chi and life drawing.

Congratulations to Richard and Emily Brown on the arrival of their 4th child , Isabelle Joy, on 17 November.

Ben Martin made a two-week research visit to colleagues at the University of Bochum in Germany. He gave a talk there at the NWDR14 Workshop on Representation Theory. He also visited Rutgers University in New Jersey and gave a talk at the AMS Southeastern Sectional Meeting in Florida.

Phil Wilson has been travelling in Europe and North America. He has been working with Prof FT Smith and Dr Nick Ovenden on granular flows and lipid rafts at University College London, and he gave a talk at the Lighthill Institute of Mathematical Science on lipid bilayers. At York University, Canada, he has been working with Prof H Huang on cortical spreading depression, and has delivered a talk at the 62nd Annual Meeting of the APS Division of Fluid Dynamics in Minneapolis on turbulent boundary layers.

Raazesh Sainudiin presented the newly set up departmental SAGE Notebook Server `http://sage.math.canterbury.ac.nz/` in an unconference on Mathematical and Scientific Computing at the KiwiPyCon2009 in Christchurch in November. Kiwi PyCon 2009, organised by the New Zealand Python User Group, is an independent, community-run, community-controlled and not-for-profit conference dedicated to the Python programming language, Python applications, toolkits and frameworks. At the conference experiences were shared about using SAGE notebooks to teach mathematical and statistical computing at the University of Canterbury.

As part of The Year of Astronomy 2009, Emeritus Professor Roy Kerr has been giving invited talks in Minsk, Belarus; at Cambridge University; and in Fortaleza-Sobral, Brazil, to commemorate the expedition to Sobral in 1919 that confirmed Einsteins prediction of the bending of light near the sun. Recent visitors include: Karen Magnuson-Ford and Travis Ingram (Simon Fraser University), Assoc. Prof. Gary Froyland and Ognjen Stancevic (University of NSW), Dr Bjarki Eldon (Oxford University) and Prof Eric Lehman (University of Caen).

SEMINARS

Huaxiong Huang (York University, Canada) "Mathematical Models for Cortical Spreading Depression"

Mark Wilson (University of Pittsburgh) "A Funny Thing Happened on the Way to Formalism"

Jeroen Schillewaert (University of Canterbury) "Characterizations of generalised Veroneseans and their use in cryptography"

Geoffrey Whittle (Victoria University) "Is the Missing Axiom of Matroid Theory lost Forever?"

Bjarki J Eldon (Oxford University) "Gene genealogies and large offspring numbers"

Dirk Pattinson (Imperial College, London) "Recent Developments in and around Coalgebraic Logics"

Cristian Calude (University of Auckland) "Can Peano Arithmetic prove randomness?"

Eric Lehman (University of Caen) "Topics in Geometry"

Niki Davis (University of Canterbury) "E-Learning and Teaching: how could we enhance access to maths and stats?"

Michael Langton (University of Canterbury) "Surface Reconstruction with Piecewise (Hermite) Radial Basis Functions"

Kathleen Clark (University of Canterbury) "Solving Problem Tutorials: a Problem-Solving Approach"

David Fortune (University of Canterbury) "Curriculum Changes in School- Level Mathematics & Statistics"

Rauno Aulaskari (University of Joensuu, Finland) "Dirichlet, Bloch, BMOA, Qp, F(p,q,s) and Besov Spaces"

Günter Steinke

MASSEY UNIVERSITY

INSTITUTE OF FUNDAMENTAL SCIENCES (MANAWATU)

We are very sad to report that Marijcke Vlieg passed away in September. Marijcke has been a strong and valued presence in the group for many years, and her sudden death shocked us all and has left a very

big hole to fill. Her funeral was well-attended by staff and students from the university, and there were many moving reminiscences. An obituary can be found elsewhere in this newsletter.

Bruce van Brunt made another visit to KAIST during the Korean autumn (September, October). Bruce gave a set of lectures on partial differential equations and participated in a workshop on kinetic theory and fluid dynamics hosted by Seoul National University. The weather was glorious most of the time and he managed to cycle some 1600km around the Daejeon area and to climb a few mountains. Evidently, he did not bring this good weather to New Zealand on his return in November.

Barbara Holland went to a Theoretical Phylogenetics conference in Tasmania (Phylomania). There were lots of interesting talks on topics such as 'The tight span of metric spaces' by David Bryant, 'Identifiability of Phylogenetic Models for Morphological Data' by John Rhodes, and 'Markov invariants for phylogenetic rate matrices' by Peter Jarvis, to name just a few.

Recent successes in the group include a well-deserved promotion to Associate Professor for Kee Teo, and the award of Marsden grants to Barbara Holland and to Stephen Marsland, Matt Perlmutter and Robert McLachlan. Barbara's project is "Untangling complex evolution: when the Tree of Life is not a tree at all", and Stephen, Matt and Robert's is "Geodesics in diffeomorphism groups: geometry and applications". Robert's former student Dion O'Neale successfully defended his thesis in October, and continues to enjoy his postdoc at La Trobe in Melbourne.

We welcome new postdoc Klas Modin, and we welcome Bob Richardson back from North Carolina for another six months with us. Klas has joined us from Lund University in Sweden and will be here for two years working with Stephen, Matt and Robert on Lie-Poisson dynamics, while Bob splits his time between here and the States, and plays a pivotal role in our online teaching. This summer Bob will be helped by Eric Lam, who will assist with the transition from WebCT to Stream.

We will have a number of summer students working on projects with us over the break. Shaza Eltayeb will be working with Bruce van Brunt on the pantagraph equation; Ka Hoi Leung with Robert McLachlan on conformal image registration; Megan Gregory with Chris Tuffley on intrinsic linking of 2-complexes; and Haala Farah and Osman Fok will be working with Barbara Holland on identifiability of mixture models in phylogenetics, following on from the recent PhD work of Liat Shavit-Grievink.

Seminars

Klas Modin, Techniques for Adaptive Geometric Numerical Integration

Christopher Tuffley

INSTITUTE OF INFORMATION AND MATHEMATICAL SCIENCES (ALBANY)

Alona Ben-Tal (mathematics) and Beatrix Jones (statistics) have been promoted to the rank of Senior Lecturer.

Peter Kay (computer science) was chosen as the Albany Students' Association lecturer of the year from a record 132 nominations.

Gaven Martin was invited to deliver the 2009 Taft Lectures at the University of Cincinnati, Ohio. He is the first academic from a New Zealand university to receive this honour. His two lectures were on hyperbolic geometry and some of his recent research on conformal geometry.

Alona Ben-Tal travelled to Nara, Japan, to give a talk at the XIth Oxford Conference on Modeling and Control of Breathing. She then travelled to Vancouver, Canada, where she had been invited to participate and give a talk at the mini-symposium 'Cardiovascular-Respiratory Control: exploring and modeling clinically significant interactions' as part of the International Conference on Mathematical Biology and Annual Meeting of the Society for Mathematical Biology. In September she gave a seminar at the Bioengineering Institute in Auckland entitled 'New insights on the respiratory system gained by mathematical modeling'.

Shaun Cooper visited Zhi-Guo Liu at East China Normal University in Shanghai for two weeks in November.

Carlo Laing has been enjoying a sabbatical in the UK, and has given presentations at the Universities of Nottingham, Warwick, Aberdeen, Leeds, Manchester, Surrey, Exeter and Barcelona. His book 'Stochastic Methods in Neuroscience', jointly edited with Gabriel Lord, has been published by Oxford University Press.

Robert McKibbin attended the (annual) New Zealand Geothermal Workshop, held this year during November in Rotorua, and gave a talk on fluid flow and pollutant transport in warm-water aquifers. The theme of the conference was 'Geothermal and the Marketplace' and the recent rise in geothermal industry activity in NZ was reflected in the high number (230) of participants.

Mick Roberts visited Utrecht University October 23-30 to continue collaborative research with

Hans Heesterbeek (AI on Micks Marsden project). The visit was timed to overlap with a visit by Joanne Mann (post-doc on the project) who stayed in Utrecht until November 6. Mick and Jo had useful discussions with (among others) Rob de Boer (Prof. in Theoretical Biology) and with Maite Severins (PhD student in Theoretical Epidemiology). Mick continued to Mathematisches Forschungsinstitut Oberwolfach where he attended the meeting ODesign and Analysis of Infectious Disease Studies, presented an invited paper "OModelling control strategies for emerging infectious diseases", and took part in the traditional walk through the Black Forest followed by cherry cake. The day after he got home, Mick flew to Christchurch to make a presentation OModels for plagues, epidemics and pandemics at the RSNZ New Fellows seminar.

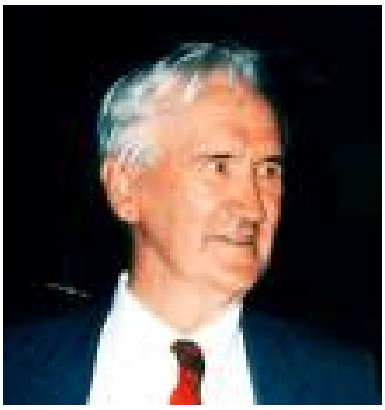
Graeme Wake presented papers on his National Research Centre of Growth and Development (NRCGD) funded project on modeling optimal fetal growth at the NRCGD Science symposium in AgResearch, Hamilton, and in the Wellington-Manawatu Applied Mathematics Day in Wellington, both in October. These presentations were jointly with Thailand exchange PhD student Chanakarn Kiataramkul, from Mahidol University, and Albany colleague Alona Ben-Tal. Chanakarn has since returned to Bangkok but is expected to return here for half of 2010. Graeme also presented a paper at the Riddet CoRE review meeting on Mammalian Growth in collaboration with research student Syaza Latif and Dr Kumar Vetharaniam, from AgResearch. The former also presented this paper at the 2009 IIMS Postgraduate Conference. In mid-December Graeme travelled to Thailand as an invited speaker at the International Conference on Mathematics and Applications, convened under the (Thai) Centre of Excellence in Mathematics, in Bangkok.

Approval has been given for the Institute to launch, in 2010, a Masters degree option of Industrial Mathematics and Statistics in the Master of Information Sciences degree. Students without an honours degree will do a two-year program: one year of taught papers followed by a research thesis year, in situ with an industry partner. Details occur elsewhere in this newsletter. The NRCGD is providing four Masters fee scholarships for 2010.

Massey colleagues congratulate Dr Alex McNabb FRSNZ, one of NZ's leading applied mathematicians, and send very warm wishes on his 80th birthday in early January.

Kevin Byard has successfully defended his PhD thesis 'Qualified Difference Sets'.

The majority of the IIMS postgraduate mathematics students presented talks at the (annual) IIMS postgraduate conference at Massey University Albany. The conference this year had a far greater turnout than the previous two years, and the quality of talks were of a highly commendable nature. Rami Elbeltagi won the awards for best mathematics talk and second best talk overall.



Dr Alex McNabb

PhD students Haydn Cooper, Maarten McKubre-Jordens and Masters student Graeme OBrien presented talks at the (annual) New Zealand Mathematics and Statistics Postgraduate Conference, this year held in Foxton Beach and hosted by the Palmerston North campus of Massey University.

SEMINARS

Tanya Evans "The closed set of parameters of Kleinian groups"

Rachel Fewster (University of Auckland) "Variance estimation for systematic designs in spatial surveys"

Vivien Kirk (University of Auckland) "Designing experiments using mathematics: nonlinear dynamics and calcium oscillations"

Robert McKibbin "Groundwater pollutant transport: transforming layered models to dynamical systems"

Maarten McKubre-Jordens "Minimising Mean Distortion for Doubly Connected Regions"

Winston Sweatman "Regularisation and Clifford Algebras"

Shaun Cooper and Marie Fitch

UNIVERSITY OF OTAGO

DEPARTMENT OF MATHEMATICS AND STATISTICS

The Department was thrilled to learn that Prof Jörg Frauendiener had obtained a Marsden Grant of $885,000 for the next three years. The title of the project is "Global simulation of gravitational waves from isolated systems". Congratulations, Jörg, on your great achievement. Jörg also participates in a large international IRSES project on "Integrable and random systems in mathematical physics", funded within the FP7 framework of the European Union. Both projects will make it possible to strengthen the ties between the Department and overseas.

Dr Florian Beyer began his appointment as a lecturer in applied mathematics on 16 November. Florian was previously at the Laboratoire Jacques-Louis Lions Universit Pierre et Marie Curie in Paris. He will add to the growing number of relativity researchers led by Jörg Frauendiener. (See 'New Colleagues' section.)

Dr. Mihály Kovács spent July-August at Chalmers University, Gothenburg, Sweden, to collaborate with Prof. Stig Larsson on finite element approximation of stochastic PDEs. He delivered a talk "Strong, weak and a posteriori error analysis of the finite element method for parabolic and hyperbolic stochastic equations", as an invited keynote speaker at the Workshop on Stochastic Partial Differential Equations, TU Darmstadt, Germany, August 24-28, 2009. He also gave an invited plenary lecture "Finite element approximation of the stochastic wave equation" at the Third Workshop on Random Dynamical Systems, University of Bielefeld, Germany, 18-20 November, 2009. Also in November, he delivered a mini course on "The semigroup approach for stochastic evolution equations and their finite element approximation" at the International Graduate College of the University of Bielefeld, Germany. At the end of his German trip, in November, he visited TU Darmstadt for research collaboration with Dr Matthias Geissert and he also gave a seminar talk at the mathematics department.

Boris Baeumer was invited speaker/lecturer at the second international workshop on "Stochastic Transport and Emergent Scaling in Earth-surface Processes" at Lake Tahoe, NV in the first week of November. This was followed up with a brief one week visit at the Desert Research Institute in Reno, NV discussing modelling intermittency and extreme event distributions in complex systems.

In September, five of the statistics group (Richard Barker, Peter Dillingham, David Fletcher, Chris Fonnesbeck and Jamie Sanderlin) attended the EURING 2009 Analytical Meeting in September in Pescara, Italy. This is the main international meeting for those interested in modelling vertebrate populations using data from marked individuals, with biologists and statisticians getting together to share ideas. The conference was magnificently hosted by Fernando Spina, from the Italian Institute for Environmental Protection and Research (ISPRA), and was a great success, both scientifically and socially. David Fletcher and Peter Dillingham also appreciated the fact that Chris Fonnesbeck speaks fluent Italian, as it made sampling the local restaurants even more enjoyable.

John Clark attended the Eighth Latin American Algebra Colloquium in Sao Pedro, Sao Paulo, Brazil from 1-10 August.

During the first two weeks in August, John Curran attended the Groups St Andrews Conference held on this occasion in the lovely city of Bath. The eighth in the well known series of four-yearly group theory conferences, this one was the last with the original initiators Colin Campbell and Edward Robertson at the helm. John was pleased to renew ties with colleagues from Cork (where he was on leave last year), to attend many interesting talks, to meet many group theorists whose work he was familiar with and to establish some new acquaintances with whom he has already started to collaborate.

In June 2009 Jörg Frauendiener left Dunedin to spend one and a half months in Europe. First he took up a month-long visiting professorship at the University of Dijon in France (where the good mustard and wines are from). While there he travelled to Trieste to deliver a course in a Summer School at SISSA on "Integrable systems and scientific computation". Back in Dijon there was another conference to attend: "Mathematics and Physics of Solitons and Integrable Systems", a conference in honour of V. B. Matveev. The final stop on this Tour d'Europe was Paris, where the 12th Marcel Grossmann Conference on General Relativity took place. Jrg gave two talks in the parallel sessions, one on relativistic elasticity and another one on compatible discretisations in GR.

During a second visit to Europe, Jörg went to the AEI in Potsdam to attend the Conference "Space, time and beyond" in honour of Prof. Helmut Friedrich and then on to the Centre of Mathematics for Applications at the University of Oslo in Norway. His final stop was Tübingen in Germany.

John Harraway presented a paper at the International Association for Statistical Education

Continues after centerfold ...

Marijcke Vlieg (1943-2009)

Marijcke in her office at Massey University, Palmerston North.

Marijcke died suddenly on 28 September 2009 while at work at Massey University, Palmerston North.

Born in Zeist, The Netherlands, in 1943, Marijcke graduated from the Philips-Duphar School for Analysts in 1963 with a Diploma specialising in physiology and pharmacology. Migrating to New Zealand in 1966, Marijcke took up a technician's job at Massey University in the Department of Physiology and Anatomy and later in the Dairy Husbandry Department. In 1974 Marijcke became a research assistant in the Medical Research Laboratory at the Palmerston North Hospital. Her work in medical statistics there was the driver for her gaining a formal qualification in statistics and, after nearly ten years at the hospital, she became a student in the Department of Mathematics & Statistics at Massey University.

Having taken majors in both statistics and mathematics, Marijcke graduated with a BSc (Hons) degree in 1988. She then went on to obtain a PhD in Mathematics from Massey University, graduating in 1993 — her thesis entitled *Transformation Properties of Certain Differential Equations: Solutions and Integrability* received praise from the examiners for her depth of understanding and comprehensiveness. To achieve these high-level qualifications at that stage in her life, Marijcke was surely an inspiration to older students.

For fourteen months, in 1993 and 1994, Marijcke was a Postdoctoral Fellow and Contract Lecturer at Lincoln University, working with Dr Bruce Robson in the Centre for Computing & Biometrics on a mathematical model describing magnesium metabolism in ruminants. She greatly enjoyed this experience. Marijcke returned to Massey University in July 1994 as a temporary Mathematics Lecturer until 1997 when she took up a job as a Lecturer in Statistics at the International Pacific College in Palmerston North for three months. Following that, Marijcke was employed by Massey University as a Senior Tutor and Lecturer in Mathematics until her untimely death.

Teaching was Marijcke's forte. Her belief was that teaching was of primary importance to a university — research built upon that. For her excellence in teaching, Marijcke won an Institute of Fundamental Sciences Distinguished Teaching Award in 2001 and again in 2007. She had high expectations of students and a hot remark or two went their way if they didn't put in the effort to learn! Marijcke always made time to spend with students on a one-to-one basis. This was especially true during extramural contact

courses which she loved. In 1993 she received the Massey University Extramural Students' Society Award of Merit for Outstanding Commitment to Extramural Teaching.

Versatility was Marijcke's hallmark. She was as capable of teaching statistics as much as mathematics. But she enjoyed mathematics more and over the years taught many courses in that subject. She was an expert on the use of the symbolic mathematics package *MAPLE*.

Marijcke's early research work was conducted in the Medical Research Laboratory at Palmerston North Hospital. Her main research interests at Massey University lay in the field of differential equations and symmetries. As Marijcke Vlieg-Hulstman, she wrote a number of papers in this field, on her own account or jointly with Dean Halford, Bruce van-Brunt and students Anton Selvaratnam and David Pidgeon. She was an enthusiastic co-supervisor of graduate student research. Marijcke contributed papers at many mathematics conferences and enjoyed the collegiality of those occasions. She was a very good organiser, not only of local events such as the Massey mathematics group luncheons but also as a co-organiser of Manawatu-Wellington Applied Mathematics Days.

Marijcke was a member of the NZ Mathematical Society and was for many years the Massey University (PN) correspondent to the Society's *Newsletter*. In her professional career Marijcke made many friends who are spread throughout Australia, The Netherlands, the UK and the USA, as well as New Zealand.

Whether it was stepping into a teaching gap, helping with examination marking, or providing administrative support to the Mathematics group leader and other staff, Marijcke unstintingly volunteered her skills over and beyond her own commitments. She was wonderful at home management as well as being a dedicated academic.

Marijcke will be sorely missed by family, colleagues, students and friends. Her vitality, humour and no-nonsense attitude impacted on us all. She demonstrated determination to follow one's convictions; diligence and stamina no matter how complex the job; ability to cope under stress; care for the individual; courtesy towards others; generosity of spirit, time and effort. She was affectionately regarded as the 'Mother of Massey mathematicians' in Palmerston North.

Dean Halford

Local news continues ...

(IASE) Satellite Conference to the 57th Session of the International Statistical Institute in Durban in August. At these meetings he became President elect of IASE. John is also Chair of the International Conference on Teaching Statistics (ICOTS8) to be held in Slovenia in July 2010. Details about the conference can be found at the conference website `icots8.org`.

Two PhD students supervised by David Fletcher have completed their Statistics degrees. Hearty congratulations to Peter Dillingham (lecturer in the Department) and Claire Cameron. Peter obtained his degree in August and his thesis title is "Population modeling of albatrosses and petrels with minimal demographic information". Claire was awarded her degree in December and her thesis title is "Open population capture-recapture models and diabetes in Otago".

Kristelle Roidot from Dijon, visited the Department to study with Jörg Frauendiener during November and December, following Jörg's visit to Dijon earlier in the year.

Obituary: Irene Goodwin (4 September 1949 – 27 October 2009) It is with great sadness that the Department of Mathematics and Statistics says farewell to Irene Goodwin, who died on 27 October, just a few short months after being diagnosed with cancer.

Irene was a much-loved colleague who was a mentor and friend to staff and students. Her passing has left a huge gap in the Department. She joined the Department in 1988, and spent much of her time as secretary to the Professor of Statistics and the CASM Unit. Irene was always efficient, well organized and willing to undertake new work. Department staff still hear comments from past visitors about how well they were looked after by her (more than one expressed a strong interest in taking Irene back with them!)

Despite several health problems over the years, Irene never complained and had a very positive attitude toward life. She showed this most clearly in her last few months, in a manner those who knew her will never forget.

Always cheerful, always thoughtful, always with the interests of others at heart. An example for us all.

Irene is survived by her partner Jim Wellington.

SEMINARS

Philip Dixon (Department of Statistics, Iowa State University) "Modelling seed longevity when to regenerate a germplasm collection"

Peter Fenton "An extremal problem in Harriot's mathematics"

Mik Black (Department of Biochemistry) "Current statistical challenges in high through-put genomics"

Robert Thompson "Vacuum polarization and renormalization in d-dimensional black hole spacetimes"

Paul Young (Department of Physics) "The power of many? Coupled wave energy point absorbers "

Tom ter Elst (Department of Mathematics, The University of Auckland) "Does diffusion determine the manifold?"

Te-Yuan Chyou "Passive dynamics of animal locomotion"

Shinichi Nakagowa (Department of Zoology) "The tales of two R packages: MCMC glmm and rptR"

John Curran "How many finite groups are there of any given size? (And why should we care?)"

Claire Cameron "An adapted robust design for multiple list studies"

Darryl MacKenzie (Proteus Wildlife Research Consultants) "Mad Math: Beyond the Presence-dome"

Natalia Zotov (Department of Mathematics, Statistics and Physics, Louisiana Tech University, USA) "Gravity Waves"

Murray Efford (Department of Zoology) "Spatially explicit capture-recapture models in R"

Talks by fourth year Mathematics Honours students

Sam Fernando "Infectious diseases and fractional reaction diffusion"

Chris Laing "Game Theory"

Harish Sankaranarayanan "Potential theory in the complex plane"

Padarn Wilson "Constructing a Brownian Motion"

Talks by fourth year Mathematics Honours students

Freya Broughton-Ansin "Using Hidden Markov Models to Estimate Breeding Success in Sooty Shearwater"

Michelle Feyen "Comparison of mark-recapture methods for estimating Yellow-eyed penguin survival"

Tim Jowett "Golf handicapping on the fringe of normality"

Ruby Morgan "Matrix population modelling and simplifications to the Leslie matrix"

UNIVERSITY OF WAIKATO

DEPARTMENT OF MATHEMATICS

We give double congratulations to Ian Hawthorn. First, he was a recipient of a University Teaching Excellence Award. He received his award at a Staff Awards ceremony held in early December. Recipients of awards at this ceremony are chosen across the three categories of Teaching, Research, and Administrative Excellence. The Vice-Chancellor then selects one of these recipients as the winner of the Vice-Chancellor's Medal for Staff Excellence for that year. As you might have guessed by now, Ian got this supreme award for excellence and so now has an engraved medal. Well done, Ian! On a more mundane note, he has just come back from about two months in Adelaide, Melbourne, and Hobart as part of his study leave.

Kirk Spragg is to be congratulated on his successful defense at his PhD oral. His thesis was titled "The effect of AC magnetic fields on liquid-metal free surfaces in industrial MHD". Kirk's Chief Supervisor was Alfred Sneyd while his second supervisor was Ian Craig. Kirk has recently taken up a position at Applied Research Associates NZ Ltd in Christchurch.

Sean Oughton hosted Stan Owocki from the University of Delaware for a short visit in September. Ernie Kalnins had his former post-doc Jonathan Kress from the University of New South Wales as a visitor for two weeks in the second half of October. In return, Stephen Joe spent two and a half weeks in November visiting his former student, Dr Frances Kuo, at the same institution.

Another traveller across the Tasman was Nick Cavenagh who spent over a week at the University of Queensland in the latter half of October. He has just left for a longer visit there. Tim Stokes will be visiting the University of Tasmania for about a month from mid-December. However, he intends to attend the Mathematics Colloquium before flying out. Kevin Broughan and Ernie also plan to attend the Colloquium.

Going further afield is Yuri Litvinenko. He left at the end of November for a visit to Germany and is not due back until the end of February. Yuri has a research fellowship from the Alexander von Humboldt Foundation. Earlier in October, he spent over a week in the USA.

SEMINARS

K. Bell "Investment under uncertainty: an application of dynamic programming".

K. Spragg "The effect of AC magnetic fields on liquid-metal free surfaces in industrial MHD".

S. Owocki (University of Delaware), "What physics sets the upper mass (Eddington) limit of stars?".

Stephen Joe

VICTORIA UNIVERSITY OF WELLINGTON

SCHOOL OF MATHEMATICS, STATISTICS AND OPERATIONS RESEARCH,
Te Kura Mā-tai Tatauranga, Rangahau Pūnaha

By the time you read this the School will probably have celebrated its first birthday, on New Year's Day 2010. So Happy Birthday to us — it's been a great first year! In particular, the school enjoyed much success from Marsden applications, with five separate projects being funded. Our successful PIs were: Noam Greenberg, Estate Khmaladze and Matt Visser who were each awarded full Marsden grants, plus B D Kim and Dillon Mayhew who each got Marsden Fast Start grants. Well done!

Our most recent Marsden grant winners also feature quite prominently in our other news too. Noam Greenberg was awarded a Victoria University Research Excellence Award, as was Geoff Whittle (who is still spending his previously-awarded Marsden Grant - see a bit more on that below). Noam was also awarded the Royal Society Hamilton Memorial Prize for 2009, which is presented annually for the encouragement of beginners in scientific or technological research in New Zealand or in the islands of the South Pacific Ocean. Noam won the prize "for his research relating to mathematical logic and computation theory and the development

of algorithms in computation theory". Congratulations to Noam and Geoff for those awards/prizes.

Estate Khmaladze was the driving force behind the Wellington Workshop in Probability Theory and Mathematical Statistics, held on 3 and 4 Nov 2009 at Victoria University. The workshop went very well and several members of the School helped with organisational details. For a full list of abstracts for the presented talks and some photos of the event, please see the workshop web page: `http://msor.victoria.ac.nz/Events/ProbabilityWorkshop`. Among the presenters at the Wellington Workshop were two of Estate's visitors, Goran Hognas (Abo Akademi University, Finland) and S. Jammalamadaka Rao (UC Santa Barbara). Ray Brownrigg didn't seem too put out when he drew the short straw and had to travel to Limassol (Cyprus), to present a paper that he and Estate had prepared at the 3rd International Conference on Computational and Financial Econometrics (29-31 October 2009).

Matt Visser (together with Stefano Liberati, Sebastiano Sonego, and Carlos Barcelo) published an article 'Black stars, not black holes' in the October 2009 issue of Scientific American (pp. 39-45). The article is an excellent introduction to Matt's work and has already been translated into Italian and Spanish. In a similar 'high profile' vein (but somewhat narrower in its event horizon), Matt gave a public talk on black holes at the Wellington Public Library on 9 September 2009. Also, Matt was elected a Fellow of the American Physical Society in November 2009. Fellowship is limited to no more than one half of one percent of the membership of APS. The citation on his Fellowship Certificate reads: "For contributions to gravity theory, especially the effects of energy condition violations and the development of analog models of black hole and cosmological spacetimes."

Dillon Mayhew summarised recent matroid-related work at VUW, in which Dillon has been very active, as follows. "The past few months have seen a flurry of matroid-related activities at Victoria. Carolyn Chun has arrived to start a postdoc [funded by Geoff Whittle's Marsden Grant] in various aspects of matroid representation theory. Carolyn recently completed her PhD at Louisiana State University. Her arrival, along with the presence of some enthusiastic graduate students, has prompted a series of informal matroid seminars. Topics covered to date include unavoidable minors in graphs and matroids; the problem of finitely axiomatizing representability over the reals; and the fact that we know almost nothing about the asymptotic behaviour of classes of matroids. More recently, Tanya Gvozdeva, who is visiting from the University of Auckland, has given a pair of extremely illuminating lectures on secret-sharing schemes and their connections to matroid theory."

Rod Downey's PhD student Adam Day was recently awarded a VUW Postgraduate Research Excellence Award - well done! Adam received the award on the basis of his work, 'Increasing the Gap Between Descriptional Complexity and Algorithmic Probability', which he presented at the 24th Annual IEEE Conference on Computational Complexity, in Paris in July 2009. Rod also has a new visitor arriving: John M Hitchcock (University of Wyoming) will be working with Rod from Jan 18 to Feb 12.

In further news about our students, Deborah Crook has been awarded a Masters with Distinction for her thesis "Polynomial Invariants of the Euclidean Group Action on Multiple Screws", which was supervised by Peter Donelan. Deborah is now doing a PhD at the University of Pennsylvania. Also, Robin Averill completed her PhD "Teacher-student relationships in diverse New Zealand Year 10 mathematics classrooms: Teacher care", supervised by Associate-Professor Megan Clark. Congratulations to Deborah and Robin! Congratulations too to current Masters student Vidette McGregor, who had a baby girl, Sophia Louise, on Sunday 19 September 2009. Due date had been 9 September, and Sophia was a big girl when she finally arrived - well worth the wait though and the whole family are doing fine, which is fantastic.

Mark McGuinness wrote (and I quote), "Jonathan Crook has submitted his PhD thesis 'Ice growth and platelet crystals in Antarctica', and we wish him all the best for his thesis and oral examination. Mark McGuinness is halfway home again after 10 months in Ireland, the UK, Portugal, Crete and now he is a Visiting Foreign Professor at the Department of Mathematical Sciences, Korea Advanced Institute of Science and Technology, in South Korea. He hopes his office in Wellington is still in one piece with all of the building and refurbishment that is going on at Vic. He is looking forward to a balmy summer (and an interesting ANZIAM conference in Queenstown), to kick off 2010 in Wellington."

Picking up, tangentially, on a Mark McGuinness thread: when Mark was the NZMS Newsletter editor, he was assisted very capably by Rowan McCaffery, who has also helped all the rest of us for several years with his excellent work in the MSOR School Office. Rowan is moving to half-time from 2010 and will be spending his other seven fourteenths as the manager of a new Numberworks centre (after-school tutoring) in Johnsonville. Rowan says that he, "hopes to pursue his love of Maths

teaching, without all (or at least most!) of the classroom drama". We will be sorry to see less of Rowan, but know that his new clients will be very well served. Good luck Rowan!

Rob Goldblatt gave the Keynote Address at the conference 'Logic, Language, Mathematics' held at the Eötvös Loránd University of Budapest, in September 2009, in memory of Imre Ruzsa, the founder of the Department of Logic there.

Towards the end of 2009 Hung le Pham was awarded a London Mathematical Society grant for his project 'Multi-norms and multi-Banach algebras'. The work involves visits by Hung to the Universities of Leeds, Glasgow, Lancaster and Nottingham and was arranged by Matthew Daws from the University of Leeds. Fortunately for him, Hung has missed quite a lot of bad weather in Wellington since he left, but unfortunately he's had much worse weather in the UK!

Finally, some conference news to finish things off. Several statisticians attended the International Biometric Society Australasian Region Conference (Biometrics on the Lake), held in Taupo from 29 Nov to 3 Dec: Richard Arnold, Ivy Liu, Shirley Pledger and Nokuthaba Sibanda. Apparently a great time was had by all, including by Richard who took part in the Lake Taupo Cycle Challenge the day before the conference started - well done!

As promised in the last newsletter, the School hosted the 60th Annual Conference of the New Zealand Statistical Association on 2-3 September 2009, with John Haywood the Conference Chair. Things seemed to go very well, and a full report (with some pictures) is available from this NZSA web page: `http://nzsa.rsnz.org/Newsletter70/conf erence.htm#NZSA_2009_Conference`

One highlight was the presentation of the Campbell Award to Emeritus Professor David Vere-Jones, which occurred at the Conference Dinner on 2 September 2009. The purpose of the award is to promote statistics within NZ and to recognise an individual's contribution to the promotion and development of statistics. Throughout his career DVJ has generously contributed to statistics education at all levels - inside and outside Victoria University - and he has an outstanding research and publication record. We are delighted to celebrate the award of this honour with David.

Vijay Nair (University of Michigan) gave one of the plenary talks at the NZSA Conference. In addition to his plenary talk, Vijay remained in Wellington for another 10 days, as the 2009 Shayle Searle Visiting Fellow in Statistics at Victoria University. During that time Professor Nair interacted with several staff and graduate students and also gave two public lectures, one of which was a Wellington Statistics Group (WSG) talk on 8 September. Further details of that WSG event are available on the NZSA Local Groups web page: `http://nzsa.rsnz.org/local_groups.shtml`. Vijay's visit to VUW was organised by Stefanka Chukova.

Stefanka Chukova is also the key figure (General Co-Chair) in the organisation of the 4th Asia-Pacific International Symposium on Advanced Reliability and Maintenance Modeling (APARM 2010) to be held at Victoria University, December 2-4, 2010. The theme of the symposium is 'Beyond the Traditional Reliability and Maintainability Approaches' and all the key topics in reliability, maintainability, and safety engineering will be covered. The aim is to bring together researchers, scientists and practitioners from the Asia-Pacific region to identify important and challenging problems in these areas. Several members of the School will be helping with the conference organisation, including John Haywood as Program Co-Chair. Further details, including a Call for Papers, are available at the Symposium web site:
`http://msor.victoria.ac.nz/Events/APARM2010/`

SEMINARS

For abstracts for these seminars (including the MSOR Colloquia), put an appropriately-old date in the School's seminar web page:
`http://msor.victoria.ac.nz/Events/Seminars`

Yuichi Hirose (VUW), "Semiparametric and nonparametric estimation - two examples"

BD Kim (VUW), "Applications of Iwasawa theory in connection with the Birch and Swinnerton-Dyer Conjecture"

Richard Barker (University of Otago), "A simple Gibbs sampler for calculating posterior model probabilities using MCMC output from independently fitted models"

Terence Tao (UCLA), "Compressed Sensing" (live broadcast of the Clay-Mahler Lecture at University of Western Australia, via the Access Grid)

Vijay Nair (University of Michigan), "Degradation Modeling and Reliability Inference"

Estate Khmaladze (VUW), MSOR Colloquium, "How to detect small changes in statistics and what happens when we try to catch elusive objects?"

Alexander Melnikov (University of Auckland), "Computable torsion-free abelian groups"

Terence Tao (UCLA), "Recent progress on the Kakeya problem" (live broadcast of the Clay-Mahler Lecture at Macquarie University, via the Access Grid)

Terence Tao (UCLA), "Recent progress in additive prime number theory" (live broadcast of the final Clay-Mahler Lecture, via the Access Grid)

Ivy Liu (VUW), "A hybrid method for longitudinal data"

Colleen McMurchy-Pilkington (University of Auckland), "Indigenous curriculum; from curriculum as translation to curriculum of the people. What does this mean for mathematics and science?"

Nokuthaba Sibanda (VUW), "Bayesian estimation of multinomial probabilities with non-unique cell classification: Application to trisomy 21 data"

Matt Visser (VUW), MSOR Colloquium, "The interface between quantum physics and gravity"

Hung Le Pham (VUW), "Banach algebras and automatic continuity theory"

Steffen Lempp (University of Wisconsin), "When finite times finite is infinite"

Mike Pidd (Lancaster University, UK), "DGHP-Sim: modelling hospital performance"

Geoff Whittle (VUW), "Well-quasi-ordering binary matroids"

Bruce Lindsay (Penn. State U.), "Mixtures, modes and clusters"

Robert McLachlan (Massey University), "A Result in Algebraic Mechanics"

Mike Atkinson (University of Otago), "Permutation Patterns"

Alastair Scott (University of Auckland), "Semi-parametric methods for regression with response-selective sampling"

John Haywood

INDUSTRIAL RESEARCH LIMITED

Kit Withers attended the Wellington Workshop in Probability Theory and Mathematical Statistics, VUW 3-4 Nov 2009. He gave a talk entitled "The distribution of the maximum of two multivariate ARMA processes, MMA1 and MAR1." He also presented a paper "The distribution of the maximum of a first order moving average: the continuous case" to the NZ Statistical Association Conference at VUW in September.

John Burnell attended the NZ Geothermal Workshop in Rotorua in mid-November. Warwick Kissling attended, and gave evidence at, the Resource Consent Hearing for the proposed 35 MW geothermal power station at Rotoma.

The 6th Annual Nanocluster Symposium was held at Lake Tekapo from 30 Nov – 1 Dec. This provides a forum for the three major nanocluster research groups in New Zealand — led by Dr Richard Tilley (Victoria University), Dr Simon Brown (University of Canterbury) and Dr Shaun Hendy (Industrial Research Ltd) – to meet and exchange ideas. This year invited speakers Dr Tim Schulze (U. Tennessee) and Dr Uli Zuelicke (Massey University) also participated in the meeting. Each day featured talks in the morning from students, postdocs, and established researchers. In the afternoon excursions were organised, of which the most popular were walking in Mt Cook national park, the hot pools at Lake Tekapo, and visiting the Mount John observatory.

List of attendees (in alphabetical order): IRL: Aruna Awasthi, Nicola Gaston, Shaun Hendy, Bridget Ingham, Sione Paea, Amanda Parker, Dmitri Scherbachov, Krista Steenbergen UC: Domagoj Belic, Simon Brown, Pierre Convers, Pawel Kowalczyk, David MacKenzie, Abdul Sattar, Tom Watson VUW: Kirsten Edgar, Conrad Lendrum, Richard Tilley Others: Tim Schulze (U. Tennessee), Uli Zuelicke (Massey)

Arrivals and Departures: Krista Steenbergen has arrived (from Kansas and more recently Sandia National Lab) to begin a PhD on the modelling of superheating of gallium nanoclusters, working with Shaun Hendy and Nicola Gaston.

Our French interns, Yannick Lauroua and Julien Grimault are approaching the end of their time at IRL, and will spend a couple of weeks touring the South Island before returning to France at the end of December.

Finally, Kit Withers and Roger Young will both be retiring at the end of the year, although we expect to continue seeing them for some time to come. One result of Kit's retirement is that there is now a new Maths Society correspondent ...

Warwick Kissling (press-ganged scribe)

NZMS AWARDS

AWARD FOR MATHEMATICAL RESEARCH

Presented to:

André Nies

(of the University of Auckland) "For his special creativity and highly influential contributions in the area of mathematical logic, and in particular its application to questions of computability, complexity, and randomness."

EARLY CAREER AWARD FOR MATHEMATICAL RESEARCH

Presented to:

Stephen Marsland

(of Massey University) "For his outstanding work in many areas of computational and applied mathematics, including self-organizing networks, machine learning, image registration, and generalized Euler equations."

Robert McLachlan presenting NZMS early career award to Stephen Marsland at the NZ Mathematics Colloquium harbour cruise dinner.

AITKEN PRIZE

Presented to:

Shannon Ezzat

(of the University of Canterbury) for the paper "*Representation Growth of the Heisenberg Group Over Quadratic Integers*", which he delivered at the New Zealand Mathematics Colloquium 2009.

AITKEN PRIZE

Presented to:

Michael J Smith

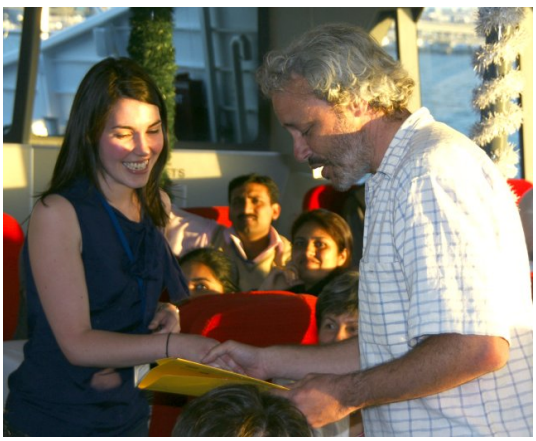
(of the University of Auckland) for the paper "*Vibration of floating and submerged elastic plates*", which he delivered at the New Zealand Mathematics Colloquium 2009.

HIGHLY COMMENDED

Presented to:

Rachael Tappenden

(of the University of Canterbury) for the paper "*Compressed Sensing: An Introduction*", which she delivered at the New Zealand Mathematics Colloquium 2009.



Left: Robert McLachlan presenting Shannon Ezzat with the Aitken Prize for best student talk at the 2009 NZM Colloquium. Right: Rachael Tappenden receiving a highly commended award from Robert McLachlan.

NEW COLLEAGUES – DR FLORIAN BEYER

I joined the Department of Mathematics and Statistics of the University of Otago in November 2009 as a new Lecturer. Before that I was a research fellow at the Laboratoire Jacques-Louis Lions of the Universite Pierre et Marie Curie in Paris since January 2009.

My hometown is Gelsenkirchen in the western part of Germany. After high school, I moved to Munster for my undergraduate studies in Physics and Mathematics. There I learned about Albert Einstein's theory of general relativity for the first time, which became my current area of research. I was so fascinated by Einstein's ideas and hence decided to do "something with black holes" for my master's thesis. Clearly, this very emotional and not very specific idea was risky at that time, since there were only a few institutes in the world with active research in this field. Hence my future prospects did not look very promising. Nevertheless, I contacted the Max-Planck Institute for Gravitational Physics in Potsdam, and was lucky to be accepted as a masters student there. It turned out to be an ideal place for students due its combination of world class research, worldwide collaborations and impressive colleagues. In particular, I learnt that general relativity is not at all a 'narrow' field of research; indeed, people from many different scientific backgrounds are active there: from pure and applied mathematicians, theoretical and experimental physicists over to astronomers and experts on supercomputer calculations. It became clear that this field offers great chances to young researchers and that open mindedness, flexibility and the will to push one's own borders gives the opportunity to do original research in this and many closely related areas. So eventually, my future prospects did not look so bad anymore when I finished my PhD at the same institute in 2007. After my PhD, I spent the year 2008 at the Royal Technical University in Stockholm in Sweden and 2009 in Paris in France as a research fellow before I moved to Dunedin recently.

These days, I am particularly interested in the consequences of Einstein's theory for cosmology in order to explain cosmological observations and predict the fate of the universe, but also to get a deeper understanding of general relativity itself. This involves techniques from geometry, partial differential equations and numerical analysis.

MASSEY UNIVERSITY

NEW MASTERS DEGREE IN

Industrial Mathematics and Statistics

Master of Information Sciences - MInfSc

Starting from 2010

Gain in-depth understanding and a synergistic set of powerful tools to model industrial systems and optimise decision - making.

Masters degree in **Industrial Mathematics and Statistics**

2 YEAR PROGRAM:

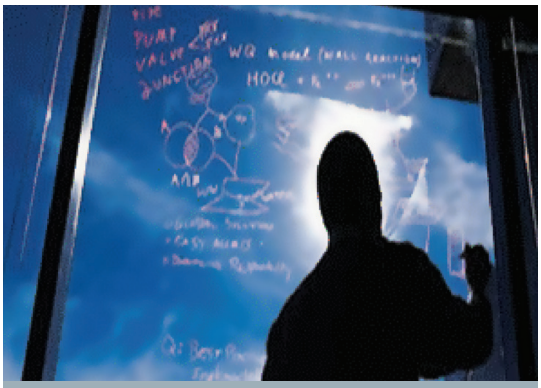
Year 1 - Students study 6 papers (level 700, each worth 15 credits) in Mathematics and Statistics along with an industrial project worth 30 credits.

Year 2 - Students complete a Masters Thesis (level 800, 120 credits).

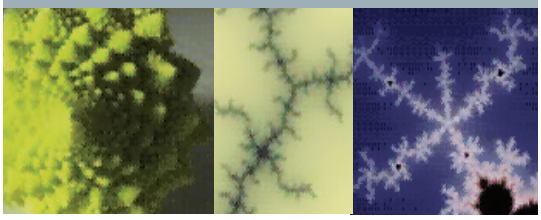
Graduate Profile

GRADUATES WILL HAVE:

- extended their knowledge of modelling and data analysis in the related subjects Mathematics and Statistics, and be able to critically evaluate relevant industrial Mathematics and Statistics from a variety of sources
- a detailed understanding of the research literature in selected areas of applications of quantitative methodologies and be able to synthesise the context of the applications
- demonstrated ability, with supervision, to analyse and draw appropriate inferences from experimental studies
- developed independent research skills through completion of supervised and mentored project work
- participated in an industrial case study in partnership with a client company
- completed an extended research project involving independent research, and have presented the results in the form of a thesis



"From the point of view of Industry, Mathematics [and Statistics] is an enabling technology. It provides a logically coherent framework and is a universal language for the analysis, optimisation and control of industrial processes. Because it is an enabling technology, its contributions are rarely visible in the final product that industry delivers. Nevertheless, the economic impact is real, and many companies - old, as well as new - have achieved a competitive advantage through the judicious use of mathematics." *(OECD report)*



For more information contact us

PROFESSOR GRAEME WAKE
Course Contact Person
DSc, FRSNZ, FNZMS, FIMA (UK)

Professor Graeme Wake has an international reputation in Industrial Mathematics and Statistics, and is well-connected to other international groups teaching and working in this area.

To enrol (after October 2009):

Call 0800 MASSEY (627739)
and ask for an enrolment pack,
or visit:
http://enrol.massey.ac.nz

http://mathsinindustry.co.nz
www.massey.ac.nz

Masters' Fees Scholarships

Up to four Masters' fees scholarships (approximately $5,000 each) are offered to selected candidates who enrol in the first year (six papers plus a project) of the new Master of Information Sciences program majoring in Industrial Mathematics and Statistics which begins in February 2010.

These scholarships are available through the Centre of Research Excellence (CoRE): the National Research Centre of Growth and Development (NRCGD) http://www.nrcgd.org.nz based at the Auckland Medical School.

It is expected that the 30 point project in the first year program (0.25 FTE) will be in association with quantitative aspects of NRCGD projects. Details of the new degree are available on http://www.mathsinindustry.co.nz .

Applications can be received by the program contact person: Professor Graeme Wake g.c.wake@massey.ac.nz up to 31st January 2010 and from whom enquiries can be made.

The awards will be confirmed after enrolments are complete, and will be paid in instalments.

An application form is available on request and on the IIMS web-site. http://www.massey.ac.nz/iims . Applications must be accompanied by an academic record and one external referee contact or reference. Scholarships for 2011 (year two of the new program) are contingent on the award of further designated funding.

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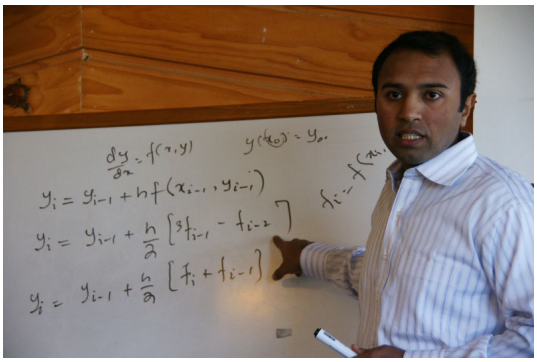
CONFERENCES

NZ MATHS AND STATS POSTGRADUATE CONFERENCE

For three days last month the normally quiet seaside township of Foxton Beach became a hive of mathematical and statistical enterprise with the 3rd annual New Zealand Maths and Stats Postgraduates' conference, NZMASP, held there over the 23rd–26th November 2009. As in previous years, the conference was well attended (57 students enrolled from honours, masters, and doctorate degrees) with most New Zealand universities well represented. There was also a good spread of subjects with approximately 1/3 each of the talks split between pure mathematics, applied mathematics, and statistics.

The student presentations were very enjoyable and the attendees gained valuable experience and an opportunity to test out and refine their talks ahead of bigger events such as the New Zealand Mathematics Colloquium. Of particular note were talks from Shannon Ezzat (University of Canterbury) who took out the best pure mathematics talk, Rachael Tappenden (University of Canterbury) who presented the best applied mathematics talk, Lyndon Walker (University of Auckland) who won the best statistics talk, and Yousaf Habib (University of Auckland) who was voted the "people's choice" for 2009. Also, two members of the "Calcium Mafia" (their words, not mine!), Emily Harvey and Katie Sharp, from the University of Auckland were highly commended.



Left Image: Attqiue Ur Rehman (U of Auckland) explaining variable stepsize schemes for explicit Runge-Kutta methods. Right Image: Lyndon Walker (left) receiving his prize from Jonathan Godfrey (Massey University, Manawatu).

The meeting was co-directed by Atheer Matroud and Luke Fullard of the Institute of Fundamental Sciences, Massey University and organised by Haydn Cooper at Massey Albany, Brigid Betz-Stablein at IFS, Massey, Christopher Ball at Victoria University, Shannon Ezzat of the University of Canterbury, and Aidin Jalilzadeh of the University of Otago.

The conference organisers would like to thank the sponsors of this event for encouraging and enabling the professional development of postgraduate students throughout New Zealand. The sponsors this year were:

- New Zealand Mathematical Society
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- Statistical Analysis Software
- Institute of Fundamental Sciences, Massey University
- Department of Mathematics and Statistics, University of Canterbury
- Department of Mathematics and Statistics, University of Auckland
- School of Mathematics, Statistics and Operations Research, Victoria University

Left Image: Emily Harvey (Auckland), Tim McKenzie (Victoria) and Peter Green (Otago) at morning tea. Right Image: Yuri Vyatkin and Nazli Uresin (both U of Auckland) talking topology during a break.

Student feedback received from the NZMASP conferences included:

> "NZMASP was a friendly environment for postgrad students to present for the first time, talking to other postgrad students was good rather than the pressure of lecturers/professors etc (some of whom may not realise how attacking their questions can be)."

> "NZMASP was a good opportunity to network with other maths and stats postgrad students. On both a social and professional research level this was very valuable."

> "Getting to see stats, applied maths and pure maths talks gave students the opportunity to see what was being done in related disciplines. There were actually strong links between some of the work done in applied maths and stats, i.e.work in genetics and biomath/stats modelling. I think there was definitely value in having the 3 groups together."

> "NZMASP was a good opportunity for more senior postgrad students to have the experience of: chairing sessions, organising+running a conference, evaluating abstracts etc."

We all look forward to the 2010 event. We hope this conference becomes an institution for the mathematics and statistics postgraduate students of New Zealand.

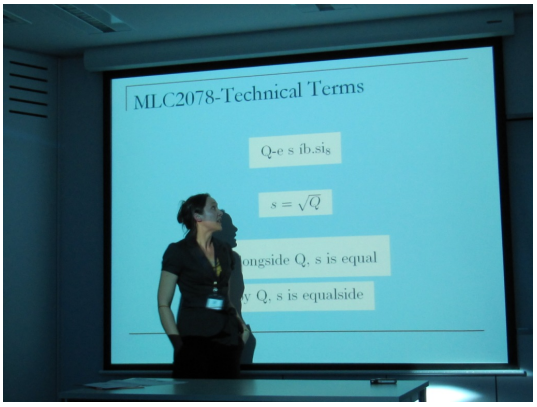
Luke Fullard

NZMS SUPPORT FOR STUDENT CONFERENCE ATTENDENCE

AUSTRALIAN MATHEMATICAL SOCIETY CONFERNCE

Clare Bycroft – University of Canterbury

The business of academic conferences is fairly new to me, and was utterly new to me before the 53rd annual meeting of the Australian Mathematical Society. This year it was held in Adelaide, and I was lucky enough to be given the opportunity to go. Adelaide reminded me of Christchurch, except that everything was bigger, older and more orange. There were parrots in the trees and pelicans in charge of the river, black swans using the walk-ways like well-trained pets, and congregations of mathematicians conniving in the corridors of the University of South Australia. Although the pelicans were a novel distraction it was these men and women from all over Australia and NZ whom I had come to meet and listen to. The meeting of minds across campuses, oceans and cultures is part of what drives academic research towards excellence, and I was thrilled to be in the midst of such a gathering. I also observed that the mathematicians from elsewhere aren't so different from the variety I find in the department at University of Canterbury. That is, each embodies a more or less homogenous mixture of modesty and brilliance.



Left Image: Clare giving her presentation. Right Image: Clemency giving her presentation.

Unfortunately, much of the mathematical content delivered by the plenary speakers was incomprehensible to me due to a significant language barrier. I very quickly realized that as an honours student I have the vocabulary of a small toddler in the world of research mathematics. However, I did understand a few phrases like "This is a story about X . . . " (M. Abouzaid), and, "I'm skipping over some of the more technical details" (E. Getzler). Thankfully, the PhD students' talks were mostly comprehendible to me, as was the public lecture given by Terence Tao titled, 'Structure and Randomness in Prime Numbers.' I liked the sound of this talk largely because I could understand all the words in the title. I wasn't disappointed, and left his lecture reassured that my mathematics degree had actually taught me quite a bit about mathematics.

As for my own talk in the History and Philosophy of Mathematics session, I hoped it was both comprehensible and interesting. The people (20 men, 3 women) who made up my audience seemed attentive as I spoke about long dead mathematicians; and my living superiors in age and wisdom were very supportive, suggesting possible thesis topics and so forth. Indeed, what I learned many times over in Adelaide was that there is so much more to learn.

Left Image: Clemency enjoying the sunshine. Right Image: Clemency and Kathy outside IKEA.

Communicating one's ideas and research in a way that is interesting, informative and succinct is a skill that even mathematicians — especially mathematicians — should master. And surely there is no better training than speaking to an audience of complete strangers, some of who may know almost nothing about the topic, others who might be leading experts in your field. I would not have had the opportunity for such training without the generous support of NZMS and the UC Math & Stats department. I am also indebted to Dr. Clemency Montelle and Dr. Kathy Clark, both of UC, for their invaluable encouragement, expertise and companionship.

INTERNATIONAL CONTINENCE SOCIETY CONFERENCE

Shannon Li – University of Auckland

The International Continence Society 39th Annual Meeting was held in San Francisco, USA, between 29 Sep and 3 Oct 2009. This is a world class meeting in advancing incontinence and pelvic floor research and treatment. The attendee consist of mainly clinicians, as well as engineers in relevant areas. This year's meeting has attracted more than 2000 professionals with 284 presenting abstracts. Our abstract on "Modelling Fetal Head Motion and Its Mechanical Interaction with the Pelvic Floor during Childbirth" has been accepted as a discussion poster. During the conference, I have talked to professionals from a couple of international groups working on pelvic floor mechanics and modelling. These groups include the Biomechanics Research Lab at the University of Michigan; the Department of Urologic Surgery at the University of Minnesota; and our collaborator at Nepean Hospital, Australia. Through our conversations, we have discussed the possibility of setting up a conference call among all the groups who are active in the pelvic floor modelling field; and further collaboration with the Australian group in terms of tissue testing and cadaver studies. These are very important aspects in order for our modelling framework to make realistic predictions in the future. My poster has also received a wide interest in the conference with some great suggestions from clinicians. Finally, I would like to give my sincerest appreciation towards the NZMS for sponsoring this trip.

NOTICES

Minutes for the 35th Annual General Meeting
4.55 pm, Tuesday 8 December 2009
Massey University, Albany

Present. Robert McLachlan(chair), Winston Sweatman(secretary), Rua Murray, Boris Baeumer, Tom ter Elst, Tatiana (Tanya) Evans, Mick Roberts, Charles Semple, Shaun Cooper, Miguel Moyers-Gonzalez, Matthew Randell, Howie Cohl, Chris Tuffley, Manfred Sauter, Alex James, Claire Postlethwaite, Garry J. Tee, John Butcher, Allison Heard, Mike Hendy, Peter Fenton, Stephen Marsland, Tammy Smith, Shaun Hendy, Steve Taylor, Tim Stokes, Igor Boglaev, Rami Elbeltagi, Maarten McKubre-Jordens, Rachael Tappenden, Wilf. Malcolm, Robert McKibbin, Graham Weir, Graeme Wake, David Gauld.

1. **Apologies**

   Apologies were received from Rick Beatson, Kevin Broughan, Peter Donelan, Stephen Joe and Gaven Martin.

2. **Minutes of 34th Annual General Meeting**

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

3. **Matters arising from the minutes**

   None.

4. **President's report**

   The President presented his report. Included within this he pointed out the large number of quality mathematics articles produced by New Zealanders during the year. He welcomed the new members of the society and remembered members that had passed away during the year. The President presented details of society members activities and awards.

   The next Forder lecture tour is to take place between 3rd and 17th September next year. The LMS has accepted the NZMS proposal to continue the Forder scheme in an enhanced form during the next ten years. The Forder lecture tour will take place every two years as previously, however, in the years in between, a New Zealand Mathematician will tour the UK as the Aitken lecturer. The first Aitken lecture tour will take place in 2011. A similar proposal has been made to the AMS. The Colloquium organisers were thanked for recording past award winners in the Colloquium programme booklet.

   The President thanked the Secretary, who is stepping down after 5 years in the position.

   The President reflected on the state of mathematics in New Zealand, considering how things have changed in the last 15 years and comparing the present state of the society with similar societies overseas. After several challenges during his period of office, the President remains determined to continue to work to see the Society grow, function well and continue to serve its members into the future.

5. **Treasurer's report**

   The President presented the Treasurer's report. The reduction in interest rates has led to a corresponding reduction in investment income. The financial accounts were presented. The financial statement was prepared by Chilton Ltd, Palmerston North and audited by Nirmala Nath, School of Accountancy, Massey University. The meeting approved the accounts (motion moved McLachlan, Sweatman).

6. **Appointment of auditors** The accountants and auditor were reappointed subject to their availability (motion moved McLachlan, Sweatman).

7. **Membership Secretary's report and annual subscriptions** The President presented the Membership Secretary's report. Online payment of subscription had worked well. The Membership Secretary John Shanks is prepared to continue in this role: this was welcomed and approved by the

meeting with gratitude. The President proposed that ordinary membership subscriptions increase by a further $ 5 to $ 50 (ex. GST) with a $ 5 discount for early payment. Other memberships increase correspondingly. This is in part to pay for the increased expenditure involved in the Forder/Aitken lectures and potential AMS/NZMS lecture scheme. The meeting approved the increases (motion moved McLachlan, Sweatman).

8. **Election of Councillors**

   - **Departing Councillors** Kevin Broughton and Boris Baeumer each have reached the end of a first term of office on the Council.
   - **President** Charles Semple (University of Canterbury) takes over as President from Robert McLachlan. Robert McLachlan remains on Council for one year as vice-President (Immediate Past President).
   - **Secretary** Winston Sweatman has indicated that he wishes to step down as Secretary after five years in the position. All the other current members of Council have indicated that they did not feel able to take on this job. Two potential new candidates for Council (Stephen Marsland and Alex James) indicated that they would be prepared to serve in this role if elected.
   - **New Councillors** There were four nominations for the two vacant council positions:
     Stephen Marsland (Massey University) by Robert McLachlan and Tammy Smith
     Alex James (University of Canterbury) by Charles Semple and Allison Heard
     Boris Baeumer (University of Otago) (for a second term on council) by Graham Weir and Rua Murray
     Kevin Broughan (University of Waikato) (for a second term on council) by Shaun Cooper and Robert McKibbin

     It was moved that David Gauld and Mick Roberts act as election scrutineers (Sweatman,McLachlan). This was approved. Alex James and Boris Baeumer were duly elected Councillors.

9. **New Zealand Journal of Mathematics**

   David Gauld reported on the NZJM. Publication is now almost up to date although there had been some delays with putting items online. A longer term aim will be to add some of the older editions of the journal. The suggestion raised of inviting review papers by prize/award winners needs to go to the editorial board.

10. **Forder/Visiting Lecturer**

    This is discussed in the President's report.

11. **Research Awards/Medals**

    This is discussed in the President's report.

12. **General business**

    - **NZMS and NZ Mathematics Colloquium** The meeting approved the Council's proposal, passed by the Colloquium meeting that:
      – Finances of the New Zealand Mathematics Colloquium are run through the books of the NZMS.
      – The New Zealand Mathematics Colloquium is now called the New Zealand Mathematical Society Colloquium.
      – There should be a NZMS Council member on the Organising Committee.
    - **Les Woods Memorial Lecture** From a proposal in July, this lecture has been organised with funding to come from Auckland Universities. The first lecture will take place in May 2010 and the first lecturer will be Gil Strang.
    - **Dissolution of Mathematical and Information Sciences Committee** Concern was expressed at the intended dissolution of the Mathematical and Information Sciences Committee of the Royal Society of New Zealand. This is due to a reorganisation at the Royal Society. There was no consultation. The President will write to the Royal Society to indicate why this Committee should continue.

- **Thanks** The meeting expressed their thanks to Robert McLachlan and Winston Sweatman, departing President and Secretary (motion moved David Gauld and Graeme Wake).

The meeting closed at 5.37pm.

LES WOODS' MEMORIAL LECTURE

The University of Auckland, in collaboration with Massey University, has begun an annual lecture series in memory of Professor Les C Woods. Professor Woods, who died in April 2007, was one of New Zealand's most distinguished real-world applied mathematicians, and a University of Auckland alumnus in both Mathematics and Engineering. Professor Woods was distinguished in both fluid mechanics and plasma physics. He was a Rhodes Scholar to Oxford after demobilization from the RNZAF following World War 2, and spent most of his career in Oxford with brief stints in Australia and New Zealand.

The intention of this lecture series (for five years in the first instance) is to mark his many contributions and highlight the role of the mathematical sciences today by bringing distinguished applied mathematicians to speak to a general audience. The lectures will be held on the University's city campus.

The first lecture in this series is expected to be given by Professor Gil Strang, from the Massachusetts Institute of Technology, and is scheduled to be held in the second half of May 2010.

Professor Gil Strang is connected strongly with Balliol College, Oxford which was also Les Woods' College in Oxford. He is a highly regarded expositor in the wider role of mathematics and its applications. Members of the wider mathematical community and others can expect a truly magnificent occasion, details of which will be advertised early in the New Year.

James Sneyd – University of Auckland
Graeme Wake – Massey University Albany

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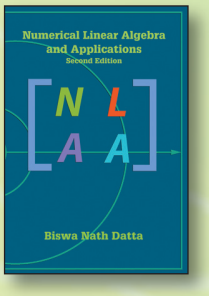

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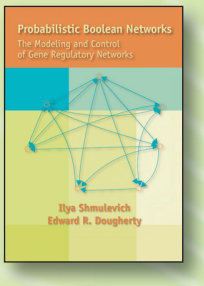

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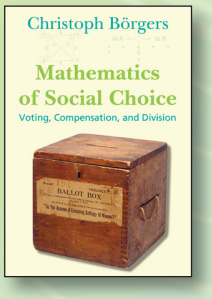

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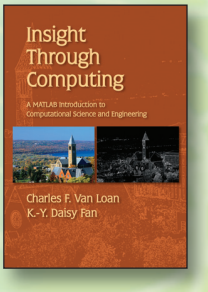

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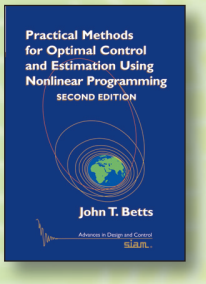

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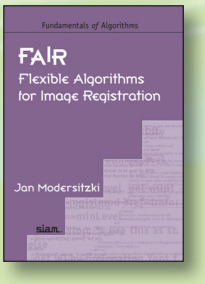

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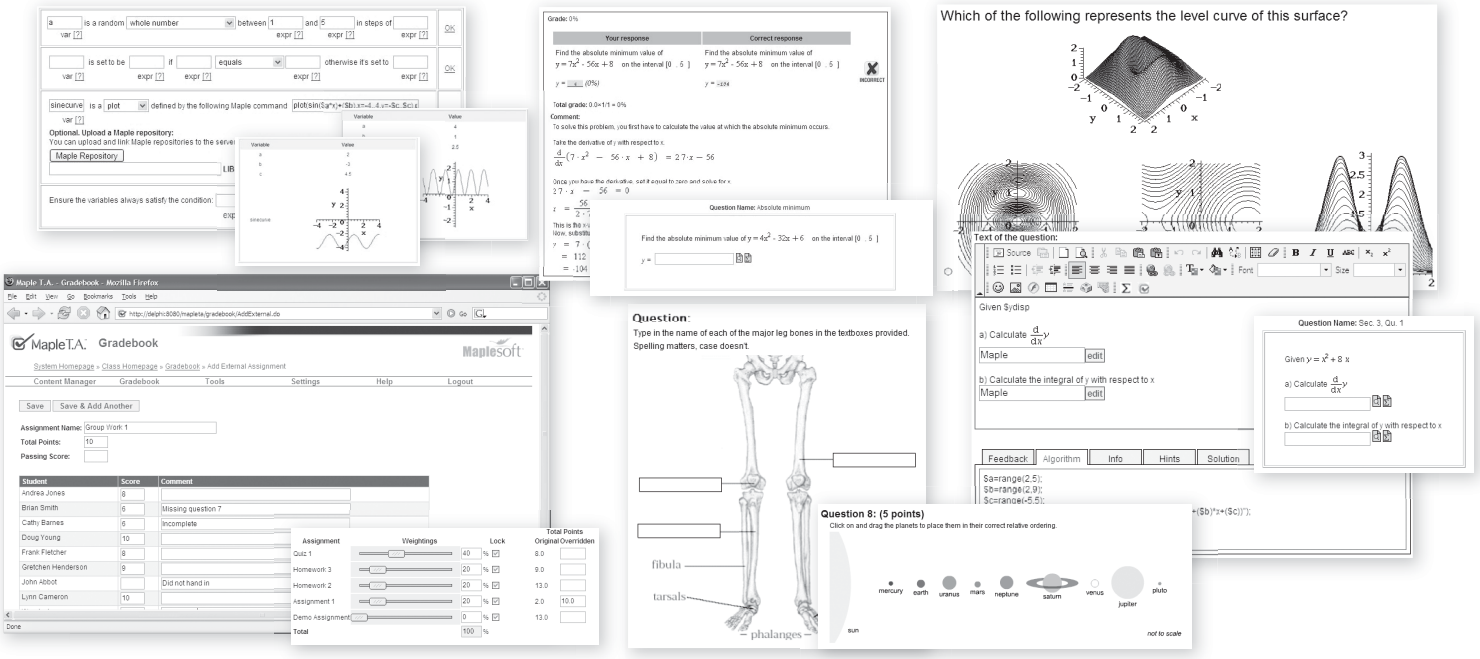

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