CONGRATULATIONS

AWARD WINNERS

Sir William Young Gold Medal in Mathematics

Jian Li

Ralph & Frances Lewis Jeffery Scholarship

Jian Li

Abdullah Al-Shaghay

Ken Dunn Memorial Prize

Yuxin Chen

Katherine M. Buttenshaw Prize

Miranda McMillan

Waverly Prize

Jillian Kendrick

Emil and Stella Blum Award in Mathematics

Travis LeBlanc

Professor Michael Edelstein Memorial Graduate Prize

Huda Chuangpishit

Heller–Smith Scholarship

Lucas Mol

NSERC AWARD WINNERS

PGS –D *Lucas Mol*

CGS-M

Ethan Mombourquette

Matthew Stephen

USRA

Jean-Phillipe Simard (Jason Brown)

Julia Tufts (Jason Brown)

NEW KILLAMS *Huda Chuangpishit*

KILLAM RENEWALS

Rebecca Milley

Emma Connon

HONOURS STUDENTS

Honours - Mathematics

Abdullah Al-Shaghay

Matthew Dempsey

Jian Li

Honours - Statistics

Sarah Ambrose

Malcolm Cameron

David Fay

Jeongyeo Park

GRADUATE STUDENTS

October 2011 Convocation:

Mathematics

Caroline Cochran (Ph.D.)

Andrew Hoefel (Ph.D.)

Andrew MacDougall (M.Sc.)

Rebecca McKay (Ph.D.)

Statistics

Liwen Zou (Ph.D.)

May 2012 Convocation:

Statistics

Melanie Abeysundera (Ph.D.)

Stuart Carson (M.Sc.)

CHAIR'S MESSAGE

by Karl Dilcher

For years now the Chase Report has been the unofficial record of the life of the department over the previous 12 months, both socially and academically, with some stories and anecdotes thrown in for good measure. Every year we've had a different cover design, but last year Gretchen came up with a design that will be difficult to improve upon; we will therefore stick with it for a few years at least. Please see p. 5 of last year's Chase Report (http://www.mathstat.dal.ca/May2011.pdf) to read about the cover photo.

This column is always an opportunity to reflect on the past academic year, and to highlight different issues in the life of the department. As in every year, this past one had its ups and downs. The Fall term went off to a rocky start with what is still known as the Great Parking Debacle. When the parking chit hit the fan, I was (fortunately?) overseas, but could still feel the shockwaves across the ocean. We can only hope that these matters will be dealt with in a better way in the future. Later, the Winter term was largely dominated by the looming strike (actually strikes) which were, fortunately, avoided at the last moment.

On the positive side I am happy to report the promotion of three of our colleagues, effective July 1, 2012: Joanne Mills Flemming will be promoted to Associate Professor, with tenure, and Keith Johnson and Peter Selinger will be promoted to Full Professor. Furthermore, Theodore Kolokolnikov, who received tenure a year ago, was awarded a prestigious Early Career Award; there is more on this to read later in these pages.

You will see a fairly large number of items about (or by) our retired colleagues. Here I'd like to single out Hermann Brunner who, after an illustrious career and 32 years away, has just returned to our department. He joins an active group of retired colleagues and emeriti, including Renzo Piccinini who had moved to Halifax years earlier. They tremendously enrich the scientific and social life of our department. I'd like to invite readers to see my recent cover article in the CMS Notes on the important contributions of these colleagues ("In praise of older colleagues", http://cms.math.ca/notes/v44/n2/Notesv44n2.pdf).

The Summer of 2011 saw the continuation of the major renovation project of the Chase Building, with most faculty offices on the 2nd and 3rd floors receiving new flooring and new paint jobs. This coming Summer the same will happen to the first floor and part of the basement. In April the whole building was fixed with new and more efficient (and also brighter) lighting; we were actually the first building in a large-scale campus-wide project.

This is now my sixth year as Chair. It's not as bad as it sounds (at least for me!), and that's mainly due to the great people I work with on a daily basis. Those are in particular the Directors, graduate and undergraduate advisers and coordinators, and most importantly our office staff, Ellen, Gretchen, Maria and Paula, and Balagopal, our Systems Administrator, who keep everything running so smoothly. I thank them all.

MATHEMATICS DIVISION

by Robert Milson

The 2011/2012 academic year saw continued strong enrolments in the first- and second- year mathematics courses. The department also has a dynamic new page targeting prospective Dalhousie students. Go to

http://www.dal.ca/academics/undergraduate_programs.html

and navigate down the list to Mathematics entry. Our regular web page has also undergone a transformation, and now prominently features the timely and useful listing entitled "The Department This Week".

On the curriculum side, the only change to report was the transformation of the second year Introduction to Numerical Computing into MATH 3210, Introduction to Numerical Analysis. Starting next year, the graduate program will see some changes to the format of the specialist comprehensive exam to bring it into alignment with current policies at the Faculty of Graduate studies.

I am also happy to report that the division will host the 2013 summer CMS meeting and a Eastern Regional AMS meeting in 2014. Organizational efforts for both conferences are underway.

STATISTICS DIVISION NEWS

by Bruce Smith

Congratulations to Hong Gu and Toby Kenney on the birth of their son Simon, Rose and Jing Zhang on the birth of their son Adam, and Dong Lin and Lingyun Ye on the birth of their daughter Elise Chenxin during the past year.

Hong Gu will be on maternity leave until July, after which she will take up a six month sabbatical. She will return as Director of the Statistics Division in January, 2013.

Ron Hilburn will be retiring on June 30. Ron has been the mainstay of our undergraduate teaching efforts during the past decade. Thanks, Ron, for your many contributions, and best wishes for the future.

George Gabor retired on July 1, 2011. He has recently completed a book "Miselading Indicators: How to Reliably Measure Your Business" with Phil Greene, who was our Statistics Consultant in the mid-1980's.

Our Statistical Consultant, Sam Stewart, is leaving us this spring to pursue other challenges. We wish him well and thank him for his work over the last few years. We welcome back Chris Jones to the Statistical Consulting Service to resume his former role as Consultant.

Congratulations to Mike Dowd, Chris Field and Hong Gu on the successful renewal of their NSERC Discovery grants.

Congratulations to the following students graduating at the May, 2012 convocation.

Melanie Abeysundera - Ph.D. in Statistics

Stuart Carson - M.Sc. in Statistics

Sarah Ambrose - B.Sc. Honours in Statistics

Greg Britten - B.Sc. Combined Honours in Biology and Statistics

Michael Butler - B.Sc. Major in Statistics

Malcolm Cameron - B.Sc. Honours in Statistics

Alyssa Cirtwill - B.Sc. Combined Honours in Biology and Statistics

Mathew Dempsey - B.Sc. Combined Honours in Mathematics and Statistics

David Fay - B.Sc. Honours in Statistics

Xue Gao - B.Sc. Bachelor of Science Double Major in Economics and Statistics

Jian Li - B.Sc. Combined Honours in Mathematics and Statistics

Jeongyeo Park - B.Sc. Honours in Statistics

Qihang Wang - B.Sc. Combined Honours in Economics and Statistics

Tongfei Yang - B.Sc. Bachelor of Science Double Major in Economics and Statistics

News of Recent Graduates

Vaneeta Kaur Grover (PhD, 2011) is a Statistician with Dupont Corp. in Wilmington, Delaware. Congratulations to Vaneeta and her spouse Himangshu on the birth of their daughter Tanvi Mishra.

Wade Blanchard (PhD, 2011) is a Statistical Researcher at Australian National University in Canberra.

AWARDS DAY SPEAKER

This year's Awards Day Speaker is **Matthew Heller**. Matt was born in Montreal, but spent most of his childhood years growing up in Burlington, Ontario. He first came to Halifax in the summer of 1996 to attend Dalhousie as a part of the then new Integrated Science Program.

Matt graduated in 2001 with a First Class Honours degree in Mathematics and a minor in Philosophy. He was also awarded the Sir William Young Gold Medal (the highest award in Honours Mathematics), and he shared the Ralph & Frances Lewis Jeffery Scholarship with another graduating student.

Since leaving the world of academia, Matt has been working in the financial services industry, most recently with Manulife Securities as a full service investment advisor. Matt lives in Halifax, and has been a regular visitor to our department over the years. He has also been instrumental in establishing the Heller-Smith Foundation Graduate Scholarship in Mathematics and Statistics. *-kd*

POSTDOCTORAL FELLOWS

Mahya Ghandehari received her Bachelor's Degree in civil engineering in 2001 from Isfahan University of Technology, Iran. She obtained her Master's degree in mathematics at Sharif University of Technology. In 2005, she finished her second Master's degree at Concordia, and in June of 2010 she defended her Ph.D. thesis at Waterloo under the supervision of Brian Forrest and Nico Spronk. She then joined our department as an AARMS PDF to work with Jeannette Janssen and Keith Taylor. Her research interests are in harmonic analysis, Fourier analysis, and combinatorial structures. Mahya will leave us this coming August to take up a limited-term faculty position in Analysis at the University of Saskatchewan.

Peter LeFanu Lumsdaine joined our department in September of 2010 to work with Peter Selinger and Dorette Pronk as an AARMS PDF. His current research is in categorical logic; in particular, homotopy type theory and quantum programming languages. He obtained his Bachelor's and CASM at the University of Cambridge, and his PhD at Carnegie Mellon University under Steve Awodey. Next year, he will be joining Vladimir Voevodsky's Univalent Foundations group at the Institute for Advanced Study in Princeton.

Rogers Mathew will join this department later in the Summer as the "AARMS Director's PDF", to work with Jeannette Janssen. Rogers received his B.Tech degree in Computer Science at the University of Kerala, and his M.E. in Computer Science at the IIT Bangalore. He is currently finishing his Ph.D. at the same institution. His research interests are in graph theory, graph algorithms and combinatorics, with special focus on geometric graph theory.

Rob Noble did his undergraduate studies at Simon Fraser University and obtained his M.Sc. at UBC. He then came to Dalhousie and finished his Ph.D. here in May, 2011, with a thesis in number theory. Since September, 2011, he has been here on a part-time postdoctoral fellowship, co-supervised by Karl Dilcher and Keith Johnson. Rob's thesis was on holonomic sequences, but he is also interested in various parts of algebraic number theory.

Mahdi Shafiei received his PhD in Computer Science here at Dalhousie in 2009. But already from November 2008 he did postdoctoral research at Acadia University under the supervision of Hugh Chipman, on statistical learning for networks, including social networks and transactional network modeling. In January, 2011 Mahdi joined our department to work with Joe Bielawski and Hong Gu on network modeling of complex microbial communities most closely associated with the human body.

Francis Valiquette is here as an AARMS post-doctoral fellow under the supervision of Robert Milson. Francis received his undergraduate degree in Mathematics and Physics from the Université de Montréal. He did his graduate work at the University of Minnesota, receiving his PhD in 2009 under the supervision of Peter Olver. His research is in mathematical physics and the geometry of differential equations. Francis spent the next two years at McGill University as an NSERC post-doc where he pursued research in infinite-dimensional transformation groups.

Huaichun Wang received his Ph.D. in Biology at the University of Ottawa in 2005, and is a Postdoctoral Fellow funded by the Center for Comparative Genomics and Evolutionary Bioinformatics. His research interests include Molecular Evolution and Bioinformatics, and he has worked with Dr. Ed Susko and Dr. Andrew Roger of the Department of Biochemistry and Molecular Biology on statistical modeling of protein sequence evolution.

VISITORS

In addition to our postdoctoral fellows, research visitors also contribute to the department's overall research climate. This year we've had several

medium- to long-term visitors from at least five different countries.

John Cosgrave, an annual visitor from Dublin, Ireland, spent 3 weeks with us in October, 2011. He worked with Karl Dilcher on problems in elementary and computational number theory, especially "Gauss factorials" and congruences of sums of reciprocals. He will visit again this coming October and November.

Tatiana Hessami Pilehrood and **Khodabakhsh Hessami Pilehrood** are sabbatical visitors for the year 2012. They both received their Ph.D. degrees at Moscow State University, and later taught at Shahrekord University in Iran. Both Tatiana and Khodabakhsh are number theorists, working with Karl Dilcher.

Genly Leon Torres, from the Mathematics Department of the Universidad Central "Marta Abreu" de Las Villas in Santa Clara, Cuba, visited the department for 4 weeks this Spring. He worked with Alan Coley on dynamical systems and cosmology.

Patrik Sandin, from the Department of Physics of the University of Karlstad in Sweden, has been visiting for four months this Winter and Spring. He, too, is working with Alan Coley on dynamical systems and cosmology.

Aizhan Syzdykova of Pavlodar State University, Kazakhstan, is visiting for the period of March 1 to June 30, 2012. She is collaborating with Keith Taylor and Mahya Ghandehari, AARMS Post-Doctoral Fellow, on developing the theory of a continuous wavelet transform for 4D data analysis. Her visit is funded by the Bolashak Programme of the Government of Kazakhstan.

THE CHASE FAMILY

After I had only one new baby to report last year, the department's rate of reproduction is now again at its usual level. In fact, there are more babies to report than ever before in a one-year period! With the exception of little Simon Gu Kenney, they were all born to graduate students.

A baby boy, William, was born to **Caroline Cochran** and her husband Todd on July 13, 2011.

Rebecca Milley (née Keeping) was married to Johnathan Milley in August, 2011, in Newfoundland.

A baby girl, Elise Chenxin Ye was born on September 9, 2011, to **Lingyun (Peter) Ye** and his wife Dong Lin.

On October 6, 2011, a baby girl, Rachel Marina Khalil, was born to **Nancy Khalil**. Rachel is Nancy's and her husband's second child.

On November 10, 2011, Isaac Legend Levy was born to **Chris Levy** and his wife Joanna. Little Isaac is brother to Penelope (age 3).

A baby boy, Simon, was born to **Hong Gu** and **Toby Kenney** on December 28, 2011. Simon is brother to Lucy (age 2).

A baby girl, Leen Alhazmi, was born on January 5, 2012, to **Hanadi Alzubadi**.

A baby girl, Tanvi Mishra, was born to **Vaneeta Grover** on January 25, 2012.

A baby girl, Eliana, was born on February 22, 2012, to **Angela Siegel** and her husband Eric.

A baby boy, Tamin, was born on April 11, 2012, to **Alanod Sibih**.

Also this past year, a baby boy, Adam, was born to **Jing Zhang** and his wife Rose.

Congratulations to all! *-kd*

RETIREMENT

Ron Hilburn is currently teaching his last course at Dalhousie before moving to BC this Summer. Though not technically a retirement since he has been on a sequence of 1-year appointments, for all practical purposes Ron has been a full member of this department. Also, in his position as STAT 1060 course coordinator and instructor, he has taught more students over the years than almost anybody else, with the possible exception of his Calculus counterpart.

Ron received his B.Sc. in Engineering at West Point, and later an M.Sc. in Environmental Engineering and a Ph.D. in Engineering from the University of Washington. After working as an Environmental Engineer and Project Manager in Massachusetts and in Halifax, he taught at Dalhousie's Faculty of Engineering, as well as at SMU and MSVU, before joining the Statistics Division in this department in 2003 as a full-time Assistant Professor on limited-term appointments.

Best wishes to Ron for a happy and healthy retirement. *-kd*

A HOMECOMING

While some colleagues leave us after retirement to move to milder shores, others join us after their official retirement. We are happy to welcome **Hermann Brunner** back to our department after his recent return to Nova Scotia.

Hermann, a native of Switzerland, received his M.A. and Ph.D. degrees at the ETH Zurich, and he first joined our department in 1967 as an Assistant Professor. He quickly rose to Full Professor before he left for Europe in 1980, and later joined the Department of Mathematics and Statistics at Memorial University. He is now Professor Emeritus at MUN, and has recently held visiting positions at the University of Strathclyde (Glasgow, Scotland) and at Hong Kong Baptist University. His main research interests are in the numerical analysis of Volterra functional integral and differential equations.

Hermann has not only been a leading researcher in Applied Mathematics, he has also played an important role in Science Administration regionally and nationally. From 1999-2005 he was Director of AARMS, and he was elected a Fellow of the Fields Institute in 2006. He also served on NSERC Committees in recent years, and was Group Chair for Pure/Applied Mathematics and Statistical Sciences from 2006 to 2009. Since 2009 he has been Chair of the AARMS Board of Directors.

Over the years Hermann has always remained connected with this department through continuous adjunct appointments and frequent visits. We now wish him many more productive and happy years, back where he began his career as a tenure-track, and then tenured Professor. Welcome back! *-kd*

IN MEMORIAM

Mrs. Lakshmi Swaminathan passed away peacefully at home on August 28, 2011, at age 80. Born in Madras, India, she is survived by her loving husband of 59 years, Srinivasa Swaminathan. She is also survived by a daughter and her family in Boston. Mrs. Swaminathan left a successful career as an attorney in Madras to be with her husband in Canada. Here she was a well-respected and popular member of her community. She would have been very proud to see her granddaughter Neela graduate with a law degree in Boston this May.

SURPRISINGLY UNSTUFFY

One fine day in February (if there is such a thing in Nova Scotia) I received an e-mail from our Emeritus and old friend Tony Thompson in Vancouver. He wrote,

"I had quite a surprise yesterday when I got on the bus. Boldly staring out at me from the side of the bus shelter was a photo of the Chase building with the A&A cupola in the background. I forget the exact wording of the Dal promotion line but it ended with 'Must be the ocean air'!"

Tony then ended with the observation, "Will it attract BC students who already enjoy the ocean air?". Good point. But, still, we're proud to see our Chase Building displayed across the country, plus at least once in the Globe and Mail. The complete ad line, by the way, reads, "Almost 200 years old and surprisingly unstuffy". Just like Professor Thompson. (I mean, of course, the second part of the line). *–kd*

A SURPRISING CAREER

We're fond of saying that with a mathematics degree you can do almost anything, and we have our examples of math graduates who made careers in law, medicine, architecture, and even music, in addition to some more obvious career choices. However, the following took me by surprise, and the large article on the front page of the "Life" section in the Globe & Mail of February 14, 2012, at first didn't even register with me. The title was "The best Canadian chef you've never heard of".

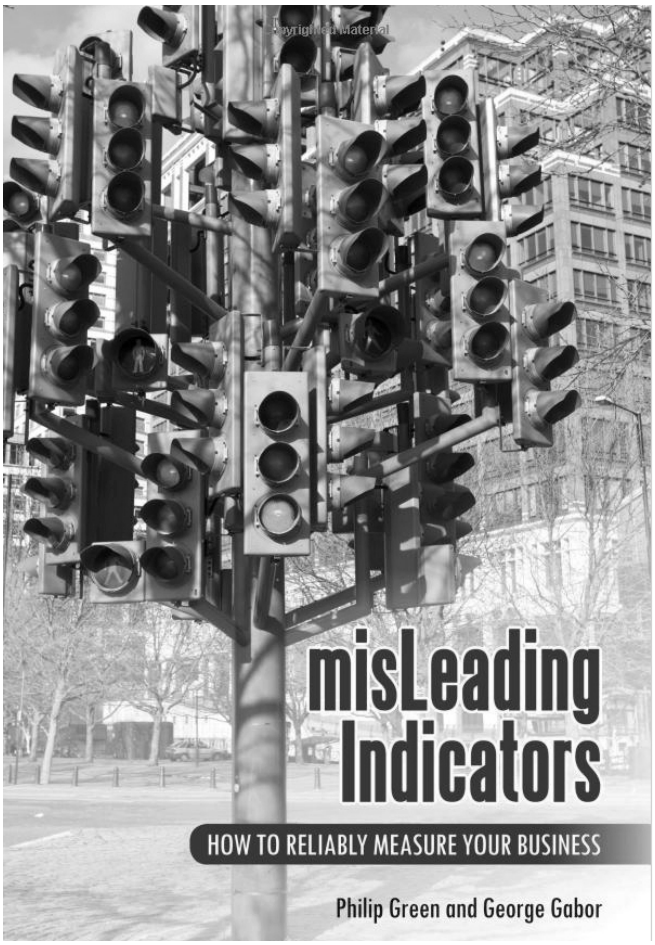
It took an e-mail from Tony Thompson in Vancouver (already mentioned above) to draw my attention to this article which was filed in London, England, and begins with,

"Throughout his career as one of elite restaurant cooking's most in-demand chefs, Daniel Burns has built his name quietly, always working behind the scenes.

"At Noma, in Copenhagen, the Halifax-raised chef built and then ran the pastry department for three years as the room vaulted from near obscurity to the most influential restaurant on the planet. Yet in his typical style, Mr. Burns, who finished degrees in mathematics and philosophy at Dalhousie University before taking up professional cooking, brushes aside any credit. 'It was just a massive opportunity that was waiting for me there,' he says."

The article then mentions a London restaurant and continues, "The Fat Duck earned its third Michelin star during Mr. Burn's 18-month tenure there and hit No. 1 on Restaurant magazine's international best-restaurants list."

Daniel Burns received his B.Sc. with a major in Mathematics in the mid-1990s. Several of us more mature faculty members still remember him, and in fact, a couple of years ago he stopped Tony Thompson on the street in Vancouver. We look forward to reading more about Dan Burns in the future. *-kd*



MISLEADING INDICATORS

You don't have to be a star chef to be featured in the Globe & Mail, as George Gabor, who retired from this department in October of 2010, recently demonstrated. His recent book, "misLeading Indicators: How to

Reliably Measure Your Business" was featured in a long article ("Investing in a world of misleading signs") in the Globe & Mail's Business section on April 30, 2012.

George's co-author Phil Green also has a connection with this department: He was here as a full-time statistical consultant in the mid-1980s. For over 20 years now he has been president of his Mississauga-based consulting firm Greenbridge Management. Phil is quoted in the article as saying, "It's amazing how people take numbers for granted; that explains why it's essential to delve deeply into indicators to understand what they actually indicate, what conclusions can be safely drawn from them and whether they have any value." Further information about the book can be found at http://misleadingindicators.com/
-kd

FRENCH HATS IN IRAN

Another book by a retired colleague could hardly be more different from the one mentioned above. "French Hats in Iran", by Heydar Radjavi, is a deeply personal volume of stories and anecdotes. The description on amazon.com describes it well:

"All memoirs bring the past into the present, but only a few manage to illuminate both simultaneously. French Hats in Iran, a quietly insightful masterpiece of remembrance, belongs in that select group. Heydar Radjavi's evocations of growing up in Tabriz in the 1930s and 1940s describe a traditionalist Iran grappling with modernity, a process as fraught with contradictions and stresses then as it is in Iran today. In a series of mini-tales, we meet a rich cast of characters: the elderly father who works in the Tabriz bazaar and runs his household according to unbending religious precepts; the resourceful mother who finds ways to enjoy such forbidden frivolities as music; the female playmate who marries at the age of nine; the teacher whose personal journey takes him from strictest piety to political radicalism; and many more. Finding a path through all the complexities is Radjavi himself—a wide-eyed little boy in some episodes, an adventurous teenager in others, and finally a young man preparing to enter a fast-changing world. The tone is always light, the memories wonderfully vivid, and the underlying theme of tension between old and new truly timeless."

This book was published last May (2011), and can be found on amazon.ca. For further information, http://www.mage.com/nonfiction/fhii.html.
-kd

A NATIONAL AWARD

Congratulations to **Theodore Kolokolnikov**, who was awarded the 2012 CAIMS/PIMS Early Career Award in Applied Mathematics. The citation reads,

"Prof. Kolokolnikov has been given this award for his highly influential contributions to the study of pattern formation in systems governed by nonlinear differential equations.

"Prof. Theodore Kolokolnikov is a versatile researcher who has made significant contributions to the study of phenomena modeled by nonlinear differential equations. He uses a wide range of mathematical techniques including asymptotic methods, PDE theory, complex analysis, dynamical systems, special functions, and scientific computation. He combines these diverse tools in novel ways to derive precise,

quantifiable predictions about the shape and dynamic behaviour of solutions of differential equations. His work is motivated by and has wide applications to the natural sciences. These include such varied topics as models of laser fusion, patterns in chemical reactions, phytoplankton distribution in oceans, hot spots in microwave heating, models of crime, cell aggregation in chemotaxis, and biological swarming."

The award consists of a cash prize of $1,000 and a commemorative plaque that will be presented at the CAIMS Annual Meeting in Toronto in June 2012. Theodore will deliver a plenary lecture at the meeting as part of the award ceremony.-*kd*

HITTING THE ACCELERATOR

At a stage in his career when others might slow down, *Chris Field* keeps accelerating, as certified by no less an organization than NSERC.

For his research proposal entitled "Robust Procedures to Model Biological Processes", Chris was recently awarded an NSERC Accelerator Grant, a supplement of $40,000 per year for 3 years, on top of the Discovery Grant he has also received for 5 years. One cannot apply for these supplements; rather, they are awarded in conjunction with the Discovery Grants. To quote the program description, they are given "to a small group of researchers whose research proposals suggest and explore high-risk, novel or potentially transformative concepts and lines of inquiry, and are likely to have impact by contributing to groundbreaking advances in the area. In particular, for the purposes of the DAS Program, a superior research program is one that is highly rated for originality and innovation."

Chris is joining a select group of only five other Dalhousie top researchers who received an Accelerator Grant. Congratulations! -*kd*

THE DEPARTMENTAL LIBRARY

As reported in previous years, I keep a stock of old mathematics, statistics, and C.S. books, with the more elementary books stored in Room 107, and the more advanced ones in the library and in Room 305. All are for sale, with the proceeds going towards the purchase of new books. Many of the more advanced books are catalogued at
http://www.mathstat.dal.ca/~dilcher/oldbooks.html

Last Fall Huda Chuangpishit took over from Danielle Cox as Library Assistant who looks after the day-do-day operation of the library. Meanwhile, Swami continues to send out the weekly "New Books" mailings, with those interesting biographical/historical sketches. I thank them all. -*kd*

MOULDY JOE

by Peter Fillmore

This year marks the 30th anniversary of the passing of a legendary figure around Dalhousie, including our department. Joseph Silver Matheson, also known as "South Street Joe" (which became the title of a poem about him by Jim Bennet) or, in our department, as "Mouldy Joe", passed away in September of 1982.

We knew Joe as a regular visitor to our weekly department colloquium. It included tea and cookies, and this was perhaps one of its attractions for him, as he consumed quite a bit of both, with plenty of sugar in his tea. But having refreshed himself, he never skipped out on the talk. He would select a seat in the middle of the room, polish his glasses, fold his arms, and await the speaker. The rest of us then filed in and took seats around the edges of the room, generally maintaining a buffer zone around Joe. The reason for this was that Joe's clothing was often neglected, and the attendant aroma could be quite distracting. Joe sometimes went so far as to ask a question of the speaker, usually of a general nature but relevant all the same.

Joseph Silver Matheson was born in Truro in 1910 but spent most of his life in the Matheson family home at the corner of South and LeMarchant streets. He graduated from Dalhousie in 1931 and NSTC in 1934. He was a mechanical engineer but evidently never worked, devoting himself to the care of his mother Mary. She died in 1945, leaving the house to Joe, his brother Donald, and his sisters Barbara Ann Naftel and Irene Dupuy. Joe continued to live there, but the house gradually became derelict, the power and water cut off, the chimney falling down, and several windows covered with black garbage bags. Dalhousie

wanted to buy the house but Joe steadfastly refused to sell.

His passing in 1982 was noted in the Dalhousie News, which described him as "one of the best known figures on campus", whom "students and faculty knew .... as a regular at seminars, lectures and colloquia." Dalhousie acquired the property from Joe's brother in 1985 and demolished the house. Recently construction of a Dalhousie residence complex began on this site.

KEEP ON ROCKIN'

"Ocean prof rocks Dartmouth", read the big fat headline in "The Ocean Times" of April 16, 2012. While admittedly not as well-known a publication as another national newspaper mentioned in these pages, the Times refers to an evening of classic tunes performed by **Keith Thompson's** band "The Covers". The wide range of music performed at Jacob's Lounge in Dartmouth included tunes by the Rolling Stones and AC/DC. One would expect this to come from a band of geologists or electrical engineers, but we must point out that Keith belongs to 75% to the Statistics Division, 19 times out of 20. The author of the Times article hopes that The Covers will regale us with a repeat performance sooner rather than later. We hope so too, especially since Keef wrote in an e-mail interview with the Editor of this Report that "it was a lot of fun!" *-kd*

NEWS FROM OUT WEST

This department has always had good connections with UBC, with a fruitful exchange (so to say) of faculty and graduate students. For instance, the late algebraist **Patrick Stewart**, a long time faculty member here, and Chair from 1976-1980, was a UBC graduate. More recent imports are **David Iron** and **Theodore Kolokolnikov**, both students of Michael Ward at UBC.

In the other direction, we can be proud of our "exports" to UBC. **Leah Edelstein Keshet** (M.Sc., 1976), an eminent researcher in Mathematical Biology, recently served a brief term as Head of the UBC Mathematics Department. Her successor, the current Head, is another graduate of this department, namely **Mike Bennett** (B.Sc.Hon., 1987). Mike is a leading number theorist, and because he still has family in Nova Scotia, he and his wife and daughter are fairly regular visitors here.

Another one of our graduates, **Mark MacLean** (B.Sc.Hon., 1988), has taught at UBC for many years, and was one of the original members of the UBC "Science One" program, which is similar in nature to Dalhousie's DISP. Earlier this year Mark was awarded the 2012 PIMS (Pacific Institute for the Mathematical Sciences) Education Prize.

Last, but not least, I'd like to mention several of our retired colleagues who moved out West. **Luzius Grünenfelder** and **Tony Thompson** are both affiliated with UBC Vancouver, while **John Clements** has an adjunct position with UBC Okanagan in Kelowna, BC. I had the good fortune to meet with John last November in Kelowna, where he has lived with his wife Minnie since his retirement from Dalhousie a few years ago. Also at UBC Okanagan is **Heinz Bauschke** who, as Canada Research Chair, is leader of a strong research group in Convex Analysis. Heinz was a graduate student here for a brief period in the early 1990s.

We look forward to continued strong ties with both campuses of UBC. *-kd*

OTHER ALUMNI NEWS

Several alumni were already mentioned elsewhere in these pages. But I'm also pleased to report the following news.

Geoff Cruttwell (Ph.D. 2009) will take up a tenure-track position at Mount Alison this September. He and **Meghan Allen** (Ph.D. 2009) and their daughter Tesfa will be moving to Sackville, from Ottawa, this Summer.

Richard Hoshino (Ph.D. 2008) is about to take up a faculty position at Quest University, a unique and new private institution in Coquitlam, BC. After graduating, Richard first worked for the Canada Border Security Agency, and then moved to Japan with his wife Karen, where he had a postdoctoral fellowship.

SIAM MEETING

by Jeannette Janssen

In June, Dalhousie will host the biennial SIAM (Society for Industrial and Applied Mathematics) meeting on Discrete Mathematics. The meeting is expected to attract over 400 discrete mathematicians. The members of Dalhousie's Graphs & Games group, Jason Brown, Jeannette Janssen and Richard Nowakowski, are the local organizers, and all students and post-docs of the group will help out.

The meeting will have plenary lectures by internationally renowned discrete mathematicians, as well as 8 concurrent sessions of minisymposia. Jason Brown is the organizer of a minisymposium on Combinatorial Polynomials, and he will be speaking in this session as well. Jeannette Janssen is co-organizing, with Lata Narayanan, a minisymposium on geometric graphs.

There will be two smaller workshops to follow the meeting: Richard Nowakowski is hosting a workshop in combinatorial game theory, and Jeannette is co-organizing, with Anthony Bonato, the 9th Workshop on Algorithms and models for the Web graph (WAW 2012).

DALHOUSIE UNDERGRADUATE MATHEMATICS AND STATISTICS SOCIETY (DUMASS) REPORT

by Oleg Zarakhani

By the 2011/2012 executive
Council
President: Oleg Zarakhani
Vice President: Chris Rector
Treasurer: Jasper Dupuis
Secretary: Matthew Dempsey
Communications Representative: Thomas Crowell
DSS Representatives: Catherine McGivney & Abdullah Al-Shaghay

The Dalhousie Undergraduate Mathematics and Statistics Society is comprised of a group of dedicated students who volunteer many hours to enhance the university experience for students of mathematics and statistics on the Dalhousie campus. This past year we have hosted many successful events, including starting the year off with our display at the Society Fair in

September to encourage students to take part in our events. We also had a welcome back barbecue on the Chase balcony. The barbecue had a great turn out of faculty, graduate, and undergraduate students. The annual faculty wine and cheese event in February was a success as well, with the Colloquium room transformed for one night into a classy venue for professors and students to mingle and taste wine. Also, our pool nights at Locas Billiards were a great opportunity for us to relax in the evenings. We are pleased to report that the December and April tutorials once again ran smoothly with an excellent turn out. The annual general meetings were full of accomplishments, including the election of the council members for next year. We would like to congratulate those students who graduated this year and wish them luck in their future endeavours.

Thank you to everyone who came out to our events and supported this year's society in hosting these events.

Welcome and best of luck to next year's executive:
President: Dario Brooks
Vice President: Nathan Musoke
Treasurer: Olivia Roberts
Secretary: Manisha Bali
Communications Representative: Rene' Madden
DSS Representatives: Thomas Crowell

THE OCEAN TRACKING NETWORK PROJECT

by Joanna Mills Flemming and Keith Thompson

The Ocean Tracking Network (OTN), a $168-million conservation project, headquartered at Dalhousie University, is conducting the world's most comprehensive and revolutionary examination of marine life and ocean conditions, and how they are changing as the earth warms. As part of this, thousands of marine animals around the world are being tracked using acoustic telemetry technology.

Professor Joanna Mills Flemming is working to develop new analysis and visualization tools for OTN telemetry data. In many cases this requires new approaches to integrate detection, location, and sensor data from tags or receivers along with independently collected environmental data. At present she is working with Dr. Ian Jonsen (Dept. of Biology, Dalhousie) to help establish an OTN Data Team that will collaborate with field projects across the network on common data integration, analysis and visualization problems. Initial work is focused on evaluating the detection efficiency of OTN fixed and mobile (bioprobe) receivers. Statistics PhD student Stuart Carson is developing spatial point process approaches for this very purpose.

Professor Keith Thompson is developing new ways of predicting the physical properties of the ocean (e.g., water temperature, currents) and using the predictions to help understand, and ultimate predict, the distribution and movement of marine animals. The predictions are made by complex, three-dimensional models based on discretized partial differential equations describing well know physical balances. An important technical activity is the development of techniques for "assimilating" observations into the models to ensure they do not drift too far from reality. Another technical activity is the development of schemes for taking predictions from coarse resolution models and "downscaling" them (based on dynamics) to the finer scales more relevant to the marine animals. The predictive models are presently being used to understand the movement of the American Eel from the Gulf of St Lawrence to the Sargasso Sea to spawn as part of its life cycle. It turns out that relatively small movements of the eels (e.g., several cm per second) in response to environmental cues can have a major impact on their evolving distribution. Professor Thompson's group is presently attempting to use this sensitivity to invert predicted ocean conditions, and the known initial and final distribution of the migrating eels, to discover the environment cues the eels use to control their movement across the North Atlantic.

The above summaries provide a good sense of the multidisciplinary character of the research being conducted by the Ocean Tracking Network (e.g., statistics, physical and biological oceanography, observing system development and design). They also illustrate the opportunity for applied statisticians to work on exciting scientific problems that are of considerable societal relevance.

DALHOUSIE GRADUATE MATHEMATICS AND STATISTICS SOCIETY

2011/2012 Year-end Report
by Matthew Stephen

Last summer and in the beginning of the fall term, the society organized a series of informal lectures given by both postdoc's and graduate students. These lectures covered a variety of mathematical topics and gave graduate students a chance to present their research in a friendly setting. We hope to continue these student talks this summer.

In the fall term, the Dalhousie Association of Graduate Students (the student body overseeing all graduate societies at Dalhousie) underwent several structural and policy changes. As a result of this, our society was required to make several changes to its constitution. The revised constitution can be accessed through the student union website: www.dsu.ca/tiger_society/

In the winter term, with the help of Dr. Alan Coley, the society organized a couple of lectures given by faculty members. In the first of these, Dr. Dorette Pronk talked about M.C. Escher's artwork and its mathematical connection. The second of these lectures was given by Dr. Keith Johnson on the Fundamental Theorem of Calculus, his "favorite math theorem". These talks, which were both interesting and informative, were well attended by graduate and undergraduate students, as well as other faculty members.

At the end of the winter term, the society hosted a teaching seminar given by Dr. John Grant McLoughlin from UNB. A majority of our graduate students were able to attend this event. Dr. McLoughlin proved to be a great resource of teaching tips and advice. We would like to give a special thanks to Danielle Cox for organizing this seminar through Math Cirles.

At the end of both semesters we helped the Dalhousie Undergraduate Mathematics and Statistics Society coordinate final exam tutorials for statistics and calculus. These continue to be well received by first-year students.

For social events, we hosted a games night in both the fall and winter terms. As per tradition, on March 14th in celebration of Pi-Day, the society served pie and punch on the second floor landing of the Chase. We had a great selection of pies this year, including dessert, meat and vegetarian pies. For the upcoming summer, we plan on having several barbecues and other social activities like martini nights and attending the Tall Ship Silva on the waterfront.

NS MATH CIRCLES & NS MATH LEAGUE

by Danielle Cox

This year has been a busy one for NS Math Circles! Over the summer of 2011 Rebecca Milley, Karyn McLellan, Chris Levy and Ethan Mombourquette developed materials to take into the high schools and so we now have 19 presentations prepared to take out on our Math Circles visits. In September, since Angela Siegel moved to Boston and Danielle Cox took over the role of Program Director and Rebecca Milley, Karyn McLellan and Hoda Chuangpishit joined the team for the year. Richard Nowakowski continues to be the faculty advisor and a great support to the program. Graduate student Julien Ross and Alain Gamache who is a math teacher in the CSAP have begun to work with Math Circles to provide outreach to the Francophone schools. Abdullah Al-Shaghay is also a new member of the Math Circles team. He has volunteered with the program over the year and has gone on several school visits to give presentations.

This year we have visited schools within the HRM, CSAP, Chignecto-Central School Board, Annapolis Valley School Board, Tri-County School board and various home educator groups. Along with our monthly local events, we have presented to approximately 1200 students. We also had Dr. John Grant McLoughlin from UNB Fredericton do some outreach in the junior high grades, along with running a teaching seminar for graduate students. In May the 3rd annual Discover Math Days will be taking place. We will be having 4 days of talks, two French presentations and 2 English presentations with approximately 200 students outreached to during that week.

NS Math League has also had a successful year. The finals were held at Dalhousie University and everyone had a great time! John Irving of SMU ran the contests with assistance from Andrew Hare of SMU and Richard Nowakowski, Danielle Cox and Abdullah Al-Shaghay.

CHEBUCTO COMMUNITY NET

by Andrew D. Wright

Much has changed in the past year while much has stayed the same.

For eighteen years now the Chebucto Community Net has worked to bridge the Digital Divide between those with Internet access and its implied computer skills and those without.

The need remains - one in five of your neighbours lack either Internet access and/or the necessary tools or skills to use it. Just under half the poorest fifth of the population have no access.

This year Industry Canada terminated the eighteen year Community Access Program (C@P), stating somewhat bizarrely that it had achieved its goals, as if public access to the Internet had overnight become unnecessary. Chebucto Community Net was a member of C@P.

Even more bizarrely, the NS provincial government blocked the public showing of a one hour documentary on the C@P program they co-produced and had final approval of, simply because it contained the true and accurate claim that broadband Internet was not available to everyone in the province. Chebucto Community Net was represented in the documentary.

In reaction to these and similar developments Chebucto Community Net has developed a stronger advocacy presence on the Internet. With Twitter (@ChebuctoCommNet), Facebook and Google+ social media has come a higher community profile. Amongst our growing list of hundreds of followers are many reporters, both local and distant, and we've received more media attention in the past year as a result than we've gotten since our founding.

We've certainly got an uphill battle ahead of us. Under-funded, using older technology, with no reasonable hope of any government support, we may soon represent the last non-profit public Internet access in Nova Scotia.

So why is this still so important? Commercial Internet costs more than some can afford. Internet access is an essential component of modern life. Many government services presume Internet access. Could you leave behind the poor, the sick, the elderly? Government apparently can. We, members of the general public, can't and we won't.

Chebucto Community Net is so many different things to so many different people. We're the information lifeline to the homebound invalid. We're the voice on the phone answering questions without trying to sell something to the wary senior just given a hand-me-down computer. To the geneaologist we're a trove of Maritime family trees while DOS enthusiasts write ever more complex batch files using us as their reference. We're these and hundreds of other voices, many of whom would be unheard if we were not here to help one another.

We would be unable to be any of this without the continuing support and friendship of the Dalhousie University Department of Mathematics and Statistics. For eighteen years we've looked out for each other and together we've positively affected quite literally thousands of lives. Our local MP, Megan Leslie just this week wrote to thank us for our ongoing work and we share the credit where credit is due.

Our ongoing work. Hard not to like the sound of that.

MATH CAMP FOR BLACK STUDENTS

by R.P. Gupta

The twentieth mathematics camp for black students was held the second week of July 2011. The camp was organized by the Department of Mathematics and Statistics and the Black Educators Association of Nova Scotia. Twenty-seven students were selected to attend the camp from schools all over Nova Scotia.

The aim of the camp is to generate interest in mathematics, statistics, & computer science so these students can pursue further studies in these subjects.

The students are generally of grade six and seven and are brought to the Dalhousie campus. While here they stay in Howe Hall.

Mornings and early afternoons are devoted to lectures in mathematical, statistical and computer activities, while late afternoon and evenings are devoted to extra curricular activities where they can apply the talents they have learned in the classes.

They are taken to Dalplex for one hour each afternoon where they participate in swimming and play other games such as basketball, tennis, etc.

They also visited the Nova Scotia museum of history and science and the Discovery Centre. Students of the Camp also spent an evening at the Black Cultural Centre in Dartmouth where they were told about the mathematicians and scientists of black origin and also saw a film.

The students were taught and cared for by four instructors (two from the university and two school teachers) and four chaperons. The Camp was organized under the directorship of Professor R.P.Gupta of Dalhousie University and Mr. Gerry Clarke of the Black Educators Association. It was financially supported by NSERC Promo Science Grant, Dalhousie University, the BEA and the Canadian Math Society.

CMS MATH CAMP

The second important math camp every summer is the CMS Math Camp, which is almost always either just before, or just after the BEA Math Camp mentioned above. Both together comprise our most important outreach activities of the Summer.

Last year's CMS Math Camp was once again organized by C.C.A. Sastri, Suraj Sikka, and Roman Smirnov, and it ran from July 3 to July 8, 2011. As usual, it began with a reception for the students and their parents, on a Sunday afternoon in Risley Hall. In contrast to the younger age of the BEA students, these were exclusively students who had finished grade 10 or grade 11. The camp ended at noon the following Friday, with a closing ceremony to which, once again, parents or guardians and siblings were invited.

Having attended several opening and closing receptions over the years, I always found it interesting and pleasing to see how this shy group of teens of the Sunday reception had become a cohesive, fun, and lively group by Friday, and probably already earlier. As usual, the students were exposed to a wide variety of thematic half-day activities in mathematics or statistics, led by faculty members of this department and some colleagues from SMU. Late afternoons and evenings were for sports, games, and other social activities.

The 2011 group of 20 students consisted of 11 females and 9 males, representing various different parts of Nova Scotia. Their Chaperones were Huda Chuangpishit and Dan MacKeegan. Financial support was provided by the CMS, the President's Office, and the Faculty of Science. Preparations for this year's CMS Math Camp, to take place July 9-13, are well underway, led by the same trio of organizers. On behalf of the department and the CMS (as VP Atlantic) I would like to thank the organizers, instructors, and chaperones for their contribution to this very important educational initiative.-*kd*

AARMS

by David Langstroth

AARMS continues to be busy with a wide range of programs and activities supporting research in the Mathematical Sciences. We were pleased to announce in July of 2011 the appointment of a new Director. Jeannette Janssen from the Department of Mathematics and Statistics at Dalhousie will serve for a four-year term and has begun with a major review of the Annual Summer School program, new appointments to the Board and the Scientific Review Panel and plans for activities to reflect the international theme of 2013, "the Mathematics of Planet Earth".

In the autumn of 2011 the first three AARMS Collaborative Research Groups got under way. This program enables researchers with common research interests to benefit from sharing resources and coordinating activities. Furthermore, CRGs offer young researchers a larger community for growing their research program. AARMS also believes that the critical mass achieved by CRGs will help the Atlantic Provinces to recruit and retain faculty in mathematical sciences, to attract post-doctoral fellows and offer enhanced training programs attracting more graduate students. The Collaborative Research Groups receiving funding for two years are: The Atlantic Algebra Centre, under the Administration of Yuri Bahturin; The Collaborative Research Group in Dynamical Systems, under the Administration of Theodore Kolokolnikov; and The Collaborative Research Group in Mathematical Ecology and

Epidemiology, under the Administration of James Watmough.

The annual AARMS Summer School will take place at Memorial University from July 16 to August 10 under the direction of Mikhail Kotchetov and David Pike. It will offer two courses in combinatorics and two in algebra. Our annual postdoctoral fellowship competition continues to be popular. This year we awarded one fellowship to Charles Paquette who will work at the University of New Brunswick in Fredericton under the supervision of Hugh Thomas and Eddy Campbell.

And, there is the usual collection of conferences, workshops and other scientific activities that we continue to support in our region. For a full list, and for any other information, please visit our website: www.aarms.math.ca

MATHEMATICS COLLOQUIUM IN 2011/2012

Organizer: Peter Selinger

Sep 12: Toby Kenney (Dalhousie) *Coxeter Groups as Groups with a Partial Order*.

Nov 7: Persi Diacconis (Stanford)
"The Search for Randomness"
DVD of the 6th annual Chelluri Lecture, Cornell University

Nov 18: Scott Rodney (Cape Breton University)
Degenerate Sobolev Spaces and Existence of Weak Solutions to a Family of Degenerate Elliptic Dirichlet Problems.

Nov 28: Francis Valiquette (Dalhousie University)
Inductive moving frames

Dec 5: Theodore Kolokolnikov (Dalhousie University)
Particle interaction models of biological aggregation.

Dec 15: Galia Dafni (Concordia) *Hardy spaces old and new*.

Jan 9: Alan Lindsay (University of Arizona)
Mathematical Modeling of Micro-Electro Mechanical Systems (MEMS).

Jan 30: Mahya Ghandehari (Dalhousie University)
Geometric graphs and their limits.

Feb 6: Huaichun Wang (Dalhousie University)
Joint Mathematics and Statistics Colloquium
Modeling Heterogeneous Processes of Protein Evolution for Inferring Phylogenies.

Feb 13: Mahdi Shafiei (Dalhousie University)
Joint Mathematics and Statistics Colloquium
Bayesian inference of metabolic divergence among microbial communities.

Mar 5: Peter LeFanu Lumsdaine (Dalhousie University) *The Hopf fibration, via constructive logic*.

Mar 19: Alexander S. Green (Dalhousie University)
Dependent Types and the Curry-Howard Isomorphism.

STATISTICS COLLOQUIUM

Organizer: Joanna Mills-Flemming

The Statistics Colloquium speakers for 2011/2012 were:

September 22nd - Gradient forests: calculating importance gradients on physical predictors, Stephen Smith, Bedford Institute of Oceanography

October 6th - Fluctuation judo: using photobleaching to quantify cellular copy number, Andrew Rutenburg, Department of Physics, Dalhousie University

October 20th - Robustness issues in molecular evolution and marine ecology, Chris Field, Department of Mathematics and Statistics, Dalhousie University

November 3rd - Bayesian Models of Open-Population Mark-Recapture Data with Time-Dependent Covariates, Simon Bonner, University of Kentucky

November 17th - Organic contaminants in the Niagara River during the past 25 years, Abdel El-Shaarawi, McMaster University

January 12th - Visual Clustering of High-dimensional Data by Navigating Low-dimensional Spaces, Wayne

Oldford, Statistics and Actuarial Science, University of Waterloo

January 26th - Better living through Python: MCMC in PyMC, Aaron MacNeil, Australian Institute of Marine Science

March 1st - Statistical significance of visual field deterioration: Permutation analyses of Pointwise Linear Regression (PoPLR), Neil O' Leary and Paul Artes, Ophthalmology and Visual Sciences, Dalhousie University

March 22nd - A multi state model for the analysis of changes in general health and cognition, Arnold Mitnitski, Faculty Of Medicine, Dalhousie University

April 5th - Statistical Methods in Diet Estimation Using Quantitative Fatty Acid Signature Analysis, Connie Stewart, Dept. of Computer Science and Applied Statistics, University of New Brunswick Saint John

NUMBER THEORY SEMINAR, 2011/12

Organizer: Rob Noble

September 21: Karl Dilcher, *Stern polynomials and continued fractions*.

September 28: Tony Vargas, *Zeros and limit functions of Stern polynomials*.

October 5: Keith Johnson, *Integer valued polynomials on matrices*.

October 26: John Cosgrave (Dublin), *Quarter Gauss Factorials assuming simplest value*.

November 16: Dante Manna, *A new q-analogue for Bernoulli numbers*.

December 21: Douglas Staple (Dresden, Germany), *Introduction to Perfect Numbers*.

January 11: Abdullah Al-Shaghay, *An Irreducibility Criterion of Arthur Cohn*.

January 26: Karl Dilcher, *The Gauss-Wilson Theorem for Partial Products*.

February 2: Tatiana Hessami Pilehrood, *Congruences concerning Jacobi polynomials and Apery-like formulae*.

March 1: Tony Vargas, *Zeros of Partial Sums of Power Series*.

March 22: Tatiana Hessami Pilehrood, *Congruences concerning Jacobi polynomials, II*.

OUTSIDE TALKS

Graduate students, postdocs, and faculty members presented a large number of talks nationally and internationally, at conferences and at department seminars and colloquia. Below is a list which is probably not complete. *-kd*

Ali Alilooee:
Betti numbers of path ideals of a cycle, "Monomial Ideals, Computations and Applications", CIEM Castro Urdiales (Cantabria, Spain) July 11-13, 2011. Also at "Combinatorial Algebra meets Algebraic Combinatorics", Montréal, January 2012.

Jason Brown:
Science Sings the Blues, National Academy of Sciences (Irvine, CA), invited public lecture, May 25, 2011.

Network Reliability, Technical University of Delft, The Netherlands, July 12, 2011.

A Hard Day's Math, DOK, Delft The Netherlands, invited public lecture, July 14, 2011.

Reliable and Effective Networks, TNO Research Center, The Hague, The Netherlands, July 21, 2011.

A Hard Day's Math: The Connections Between Mathematics and Music, University of Windsor, Humanities Research Group Distinguished Speaker Series, November 10, 2011.

The Mathematics Underlying Musical Mysteries, BIRS (Banff) Workshop on Mathematics: Muse, Maker and Measure of the Arts, December 5, 2011.

Also: Seminar talks, University of Windsor, November 11, 2011, and Carleton University, November 23, 2011.

Danielle Cox:
Roots of Graph Polynomials, CanaDAM 2011, University of Victoria, June 1, 2011.

All Terminal Reliability and Optimality, East Coast Combinatorics Conference, MUN, May 8, 2012.

Karl Dilcher:
On multiple zeros of Bernoulli polynomials, International Conference on Special Functions in the 21st Century: Theory and Applications, Washington, DC, April 2011.

Stern polynomials, Fibonacci numbers, and continued fractions, Grinnell College, Grinell, Iowa, April 2011.

Gauss Factorials: Properties and Applications, "Jonfest": Workshop on Computational and Analytical Mathematics, Simon Fraser Univ., May 2011.

A mod p^3 analogue of a theorem of Gauss on binomial coefficients, Conference in Number Theory, Carleton Univ., Ottawa, June, 2011. Also at Hawaii Number Theory Conference, Univ. of Hawaii at Manoa, March 8, 2012.

Stern polynomials and continued fractions, Brock International Conference in Number Theory, Brock Univ., St. Catharines, ON, September, 2011.

The Gauss-Wilson Theorem for Partial Products, Session on Analytic Number Theory and Diophantine Approximation, CMS Winter Meeting, Toronto, December 11, 2011.

Michael Dowd:
Estimating Behavioural Parameters in Stochastic Animal Movement Models, Statistical Society of Canada Annual Meeting. Wolfville, NS. June 2011.

A Particle Filter for High Dimensional Systems with Application to OceanBiogeochemistry, Ocean Sciences Meeting, Salt Lake City, Utah, February 2012.

Sara Faridi:
Resolutions of monomial ideals, CanaDAM, University of Victoria, May, 2011.

On the Resolutions of (some) simplicial forests, AMS Sectional Meeting, Lincoln, Nebraska, October, 2011.

Combinatorics and Commutative Algebra, Atlantic Algebra Center seminar talk, MUN, November, 2011.

On Monomial Resolutions, CMS Winter Meeting, Toronto, December, 2011.

Chris Field:
Bootstrapping robust hierarchical models, Department of Statistics, Texas A&M, College Station, Texas, September, 2011.

Tracking and Encounter Data in Marine Environments, Workshop in Complex Data Analysis, jointly with Texas A&M and King Abdul University of Saudi Arabia, College Station, Texas, September, 2011.

Robustness issues in molecular evolution and marine ecology, Knibbs Lecture: a special annual lecture in honour of the founder of the Australian Bureau of Statistics, Canberra, Australia, November, 2011.

A trap-centric model for capture/recapture, International Biometric Society Australia/New Zealand Conference, Kiama, Australia, December, 2011.

Joanna Mills Flemming:
Challenges in Marine Statistical Ecology: From Sea Cucumbers to Grey Seals, Keynote Talk, U of T Statistics Grad. Student Research Day in Computationally Intensive Problems in Statistics, Fields Institute, Toronto, April, 2011.

The Ocean Tracking Network: A Data Perspective, Statistical Society of Canada Meetings, Wolfville NS, June 2011.

David Hamilton:
A likelihood method for estimating abundance from binary acoustic data, University of Western Ontario, March 8, 2012.

Genotype-based association analysis using discordant pairs: a penetrance odds ratio approach, McGill University, March 12, 2012.

David Iron:
Formation of stable morphogen segregation due to geometric considerations, BIRS (Banff) Workshop: Localized Multi-Dimensional Patterns in Dissipative Systems: Theory, Modeling, and Experiments, July 24, 2011.

Roll of cellular geometry in the formations of morphogen patterns, AARMS Workshop on Mathematical Biology, MUN, August 13, 2011.

Model of intracellular signalling pathways, AMS sectional meeting, George Washington University, March 17, 2012.

Toby Kenney:
A generalized codon-based Model of Nucleotide Substitution for Protein-coding DNA Sequences, Statistical Society of Canada Meeting, Acadia Univ., June 14, 2011.

Influence Analysis in Phylogeny, International Conference On Robust Statistics, Valladolid, Spain, June 28, 2011.

Hessian Calculation for Phylogenetic Likelihood and its Application to Influence Analysis, Liverpool University, UK, July 8, 2011.

The Span Construction on Bicategories, International Category Theory Conference, UBC, Vancouver, July 21, 2011.

Joey Latta:
Unimodular Gravity and Averaging, New Brunswick General Relativity Conference, April 27, 2012.

Chris Levy:
Model of Cell Signal Transduction in a 3-Dimensional Domain, 11th Bluenose Computational and Applied Math Day, SMU, June 17, 2011, and AARMS Workshop on Mathematical Biology, MUN, August 14, 2011.

Peter LeFanu Lumsdaine:
Weak higher categories from type theory, Oberwolfach special meeting on Univalent foundations, Oberwolfach Institute, Germany, February 2011.

Axiomatising the Circle: Higher Inductive Types in Dependent Type Theory, CMS Summer Meeting, Edmonton, June 2011.

Higher Inductive Types: the circle and friends, axiomatically, "Foundational Methods in Computer Science", Kananaskis, Alberta, June 2011.

Higher Inductive Types — brief introduction, Oregon Programming Languages Summer School, Eugene, Oregon, June 2011.

Higher Categories from Type Theories, International Category Theory meeting, UBC, Vancouver, July 2011.

Free Monads via Inductive Types, Category Theory Octoberfest, Univ. of Ottawa, October 2011.

Dependent Type Theory and Univalent Foundations, series of five lectures, UFPE Summer School in Mathematics, Recife, Brazil, February 2012.

What is and isn't compatible with Univalence, Homotopy Type Theory Seminar, Carnegie-Mellon Univ., Pittsburgh, PA, May 2012.

Josh MacArthur:
Wavelets with Crystal Symmetry Shifts, AMS Sectional Meeting, George Washington University, Washington, DC, March 17, 2012.

Neil McKay:
Sums of Ordinal Stars (in Clobber), BIRS (Banff) Combinatorial Game Theory Workshop, January, 2011.

Wythoff sequences and partizan subtraction games, East Coast Combinatorics Conference, Acadia Univ., May 2011.

Reduced Canonical Forms in Wythoff Partizan Subtraction, INTEGERS Conference, Univ. of West Georgia, Carrollton, GA, October 2011.

Hackenbush Sprigs, International Combinatorial Game Theory Seminar, hosted online, February 16, 2012.

Karyn McLellan:
Two Approaches to the Growth of Random Fibonacci Sequences, Jonfest 2011: A workshop on Computational and Analytical Mathematics in honour of Jonathan Borwein's 60th Birthday, SFU, May 16-20, 2011.

Rob Milson:
The invariant classification bound, Geometry Seminar, Univ. of. Utrecht, The Netherlands, June 6, 2011.

All 4D Lorentzian manifolds of maximal order, CRM Workshop on Moving Frames, Montréal, June 14, 2011.

On orthogonal polynomials spanning a non-standard flag, 11th International Symposium on Orthogonal Polynomials, Special Functions and Applications, Univ. Carlos II de Madrid, September 1, 2011.

Rob Noble:
Conjugate algebraic integers on Lp disks, Mathematics Seminar. The University of Edinburgh, April 18, 2011, and Pure Mathematics Seminar. Royal Holloway, University of London, April 26, 2011.

Asymptotics of the weighted Delannoy numbers, Jonfest 2011: A workshop on Computational and Analytical Mathematics in honour of Jonathan Borwein's 60th Birthday, SFU, May 19, 2011.

Richard Nowakowski:
Partizan Euclid, Integers Conference, Carrollton, Georgia, October 26-29, 2011.

Introduction to Combinatorial Game Theory, University of Winnipeg, January 27, 2012.

An introduction to Combinatorial Games, Ottawa-Carleton Discrete Math Days, May 12, 2012.

Bob Paré:
Lax Presheaves for Double Categories, CMS Summer Meeting, Edmonton, June 2011,

Yoneda Theory for Double Categories, "CT11" Vancouver, July 2011.

Composition of Modules for Lax Functors, "Category Theory Octoberfest", University of Ottawa, October 22, 2011.

Dorette Pronk:
Atlas Groupoids and Categories of Fractions, "Formal methods in Computer Science 2011" workshop, University of Calgary, Kananaskis, June 13, 2011.

Equivariant Cohomology with Local Coefficients for Representable Orbifolds, mini-course during "Higher Structures in China II" workshop, Jilin University, Changchun, China, August 8-9, 2011.

The Algebra of String Diagrams for Adjunctions, Capital Normal University, Beijing, China, August 13, 2011.

Groupoids and Orbifold Cohomology, "Groupoidfest 2011", University of Nevada, Reno, January 21, 2012.

Moduli Spaces and Orbifolds: What is Half a Point?, University of Nevada, Reno, January 23, 2012.

Neil Julien Ross:
Full abstraction for set-based models of the symmetric interaction combinators, 15th International Conference on Foundations of Software Science and Computation Structures, March 24 - April 1, 2012, Tallinn, Estonia.

Peter Selinger:
Quantum programming languages and logical approaches to quantum information theory, 4 lectures, University of Paris 13, February 7-17, 2011.

Higher-order quantum computation, Department of Mathematics, George Washington University, Washington, March 4, 2011.

Logical approaches to quantum information theory, 4 lectures, IML Institute for Mathematics at Luminy, University of Marseille, March 16 – April 12, 2011.

Logical methods in quantum information theory, 27th British Colloquium for Theoretical Computer Science (BCTCS 2011), Birmingham, England, April 18-21, 2011.

Partially traced categories, 13th Union College Mathematics Conference, Schenectady, NY, April 30 - May 1, 2011.

Logical approaches to higher-order quantum information theory, 13th Union College Mathematics Conference, Schenectady, NY, April 30 - May 1, 2011.

Higher-order functions in quantum information theory, Department of Computer and Information Science, University of Pennsylvania, Aug 23, 2011.

Angela Siegel:
Lattices from Games, BIRS (Banff) Workshop, January 9-15, 2011.

Roman Smirnov:
Killing tensors and moving frames, Workshop on Moving Frames in Geometry, CRM, Montreal, June 13-17, 2011.

Hamilton-Jacobi theory of orthogonal separation of variables on spaces of constant curvature, AMS 2011 Fall Western Section Meeting, University of Utah, October 22-23, 2011.

Orthogonal separation of variables in 3-dimensional hyperbolic space revisited, Symposium on Superintegrability, Exact Solvability, and Special Functions, Centro Internacional de Ciencias AC. Cuernavaca, México, February 20-24, 2012.

Edward Susko:
Statistical Issues in Molecular Evolution: Measures of Uncertainty, CRM-SSC Medal Address, Annual Meeting of the Statistical Society of Canada, Wolfville, NS, June 2011.

Properties of Bayesian Posteriors and Bootstrap Support in Phylogenetic Inference, Centre de Recherches de Mathémathiques, Université de Montréal, September 2011.

Properties of Measures of Uncertainty in Phylogenetic Inference, Keynote address at the AARMS Special Session on high-dimensional data, Antigonish, NS, October 2011.

Properties of Measures of Uncertainty in Phylogenetic Inference, Department of Statistics, University of Waterloo, December 2011.

Keith Taylor:
Three Encounters with Crystals, Jonfest 2011: A workshop on Computational and Analytical Mathematics in honour of Jonathan Borwein's 60th Birthday, SFU, May 19, 2011.

Projections and Wavelets, Special Session on Harmonic Analysis, CMS Summer Meeting, Edmonton, June 4, 2011.

Wavelets with Crystal Symmetry Shifts, International Applied Harmonic Analysis Conference, University of Alberta, July 26, 2011.

Tony Thompson:
Monotonicity of area in (non-symmetric) normed spaces, Workshop on Hilbert geometries, CIRM Luminy, France, January 9-13, 2012.

Rory Wilson:
Geometric Graph Properties of the Spatial Preferred Attachment Model, CMS Winter Meeting, Session on Complex Networks, Toronto, December 11, 2011.

OTHER FACULTY ACTIVITIES

Here is a brief list of activities that did not fit into the list of talks above, but still deserve to be reported.

Jason Brown was a finalist for the Discovery Award 2011's Science Champion award. He also gave numerous talks, entitled "Mathematics and the Creative Process", "A Hard Day's Math", "Mathematics in Every Day life", and "Making Math Relevant and Understandable" to groups of students and educators, in schools, libraries, and on campus.

Mike Dowd co-organized the annual conference for the Atlantic Canada Estuarine and Coastal Science Society (ACCESS) here at Dalhousie, May 10-13, 2012.

Jeannette Janssen participant in an "invitation only" workshop on Graph and Hypergraph Limits, at the American Institute of Mathematics in Palo Alto, Californiai, August 15-19, 2011. In December, 2011, she was organizer of a session on complex networks at the CMS meeting in Toronto.

Toby Kenney gave a talk entitled "COLD – Software for Likelihood-Based Phylogenetic Analysis" at the CIHR Microbiomics Grant Workshop here at Dalhousie, June 8 (or August 6), 2011.

Richard Nowakowski was chief organizer of a BIRS (Banff) Workshop on Game Theory, Jan 9-14, 2011. In October, 2011, he led a session during a Lattices and Games Workshop in Lisbon, Portugal.

Dorette Pronk co-organized a session on "Homotopy and Categories" for the 2011 CMS-summer meeting in Edmonton. She was also the leader for the 2011 International Math Olympiad "Team Canada". The 2011 IMO was held in the Netherlands. The training was at York University (in January, 2011) and at the Banff Center (in July, 2011). -*kd*

SCARY, VERY SCARY!

Halloween is usually an interesting day, and since this year it fell on a weekday, many a scary character could be spotted on campus. But I never imagined that a math professor was seen as sufficiently scary to warrant a Halloween costume. This picture shows a student, Ben Feltmate, in Engineering Math I (MATH 1280) dressed up as one of us. An interesting feature are the arrows stuck through our heads. I'm not sure yet how to interpret this. I'll leave that to another year.-*kd*

BRAIN TEASERS

Edited by
Dr. S. Swaminathan

[Solutions will be posted in the department website: *www.mathstat.dal.ca*]

1. Are there two integers m, n such that $m^3 - n^3 = (2012)^2$?

2. Find the next three numbers in the sequence

4,6,9,10,14,15,21,22,25,26,33,34,35,3839,46,49,51,55 …

3. Is it possible to cut a diamond so every face of the diamond is a polygon with 7 sides?

4. What is the probability that at least two of the next 24 Fields medal winners will have the same birthday?

5. A regular hexagon and an equilateral triangle have the same perimeter. What is the ratio of their areas?

6. What letter, apart from E, can be added to the following to complete this sequence?
   S E Q U E N C _

7. Sherlock Holmes was relaxing in his study, when suddenly a snowball struck one of the windows overlooking the street below, causing it to shatter. Quickly, he went over to the window to investigate, and looking out, just caught sight of the Willoughby triplets, Danny, Mark and Oliver, disappearing rapidly around the corner. The next morning he received the following anonymous message:
   ? Willoughby. I'm certain he broke your window.
   According to this, which one of the triplets should he question about the incident?

8. Which is the odd one out?
   A TOR
   B SHOP
   C RATE
   D RECTOR
   E SIGN
   F ANTIC

CHASE REPORT

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We welcome your suggestions and comments for future issues.

Editor: Gretchen Smith, Administrator
gretchen@mscs.dal.ca
Phone: (902) 494-2572
Fax: (902) 494-5130

Department of Mathematics and Statistics
Karl Dilcher, Chair
Bruce Smith, Statistics Director
Robert Milson, Mathematics Director
Keith Johnson, Mathematics Graduate Coordinator
David Hamilton, Statistics Graduate Coordinator