WELCOME FROM THE HEAD, RAM MURTY

I welcome readers to the newly designed, streamlined, hyperlinked Communicator, which will be published more frequently, since the last issue of this self-designated "aperiodical" was in 2008! We also plan to distribute it electronically (with a link to the department's website **www.mast.queensu.ca** as well as by regular mail for those who prefer to receive a paper copy.

Since the last Communicator, the department has had some major achievements which I am happy to highlight here. First and foremost, we are delighted by the election of **Ted Hsu**, a former Queen's graduate in Physics, to represent Kingston and the Islands at Parliament in Ottawa. Ted was on the 1983 Putnam Math Competition Team, along with **Neil Ginsburg** and **Michael Swain**. Neil, who now lives in Toronto, wrote Ted's campaign song!

Second, we marked the 40th anniversary of the opening of Jeffery Hall on May 14 and 15, 2010. The event was marked by lectures from three distinguished mathematicians, Professors David Cox (Oxford), Gerhard Frey (Duisberg-Essen) and Hale Trotter (Princeton). Hale was a former mathematics undergraduate at Queen's in the 1950s. The aim of the conference was to keep the importance of mathematical research in the forefront of our scientific consciousness, as well as to commemorate the 40th anniversary of Jeffery Hall and honour Professor R.L. Jeffery, who was the first head of this department.

I am pleased to report several academic achievements of our faculty members. Since our last newsletter, Professors **Devon Lin** and **Wenyu Jiang** have been appointed as Assistant Professors in the area of mathematical statistics. In 2008, Professor **Troy Day** won the E.W.R. Steacie Fellowship and in 2009, Professor **David Thomson** won the Killam Research Fellowship. Both were also renewed as Canada Research Chairs in our department. Professors **Agnes Herzberg** and **David Thomson** were elected to the Royal Society of Canada. **Marge Lambert** was given the Distinguished Service Award by Queen's University for her 40 years of service. In 2011, Professor **Alan Ableson** was awarded the Queen's University Chair in Teaching and Learning. The first such Chair was awarded to **Leo Jonker** in 2004. Alan will use the Chair to redesign and integrate our first-year service course offerings in Calculus using technology to do some of the delivery, leaving instructors free to give their students more "face time."

This year, Professor **Navin Kashyap** resigned his position here to accept a position at the Indian Institute of Science in Bangalore, India. On a more positive note, I am delighted to report that in 2012 we expect to make a new appointment in the area of analysis.

Our undergraduate students continue to excel. In 2011, the Governor General's Academic Medal and the Prince of Wales Prize were awarded to **Rob Wang**, who is currently enrolled in the PhD program at Stanford University. Another one of our former students, **Nithum Thain**, was awarded a Rhodes scholarship last year and he is now studying at Oxford University.

Professor **John Ursell** passed away on July 30, 2009. He was 71. Professor **John Coleman** passed away on October 5, 2010. He was 93. In many ways, he was one of the "founding fathers" of this department and was head from 1960 to 1980.

The Coleman Postdoctoral program has been a remarkable success. Many of the Coleman fellows have gone on to take up high academic positions at leading universities around the world.

Queen's 1983 Putnam Team (Placed 8th): Neale Ginsburg, Michael Swain, Teddy Hsu

DEPARTMENT NEWS

UNDERGRADUATE TEACHING

Our graduate students have always served as excellent TAs in our undergraduate courses, but we also use a number of senior undergraduates as tutorial leaders in first-year courses. Much of this activity is funded by endowments.

1. *The Math Investigations Team.* For many years now, a group of senior students have run the Math Investigations module in our first-year calculus courses. The first-year students volunteer to join and we typically get 50-60 in each year. They work with investigative problems and earn bonus marks in the regular course. Of course, they are taking on extra work, but they get a rich collaborative problem-solving experience in return. The small honorarium they get comes from Alumni gifts, one from the Gill family and another in honour of Norman Miller, Queen's Math professor and beloved teacher from 1919 until 1959.
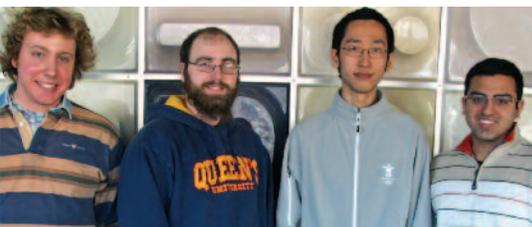
The Math Investigations Team for 2010-11, (left to right) John Treilhard, Greg Winson, Rob Wang (Coord.) and Rian Dewji

The Math Investigations Team for 2011-12, (left to right, top row) Rian Dewji (Coord), Marshall Dunn, Nick Gellner, (bottom row) Mary Robotham, Suzanne Findleton, Joanna Zolnierczyk

2. *The APSC Tutors.* Our 650 first-year engineering students are divided up into 12 tutorial groups and each of these is led by a senior Math&Engineering student. The tutors provide critical problem-solving help and check over the students? homework. This program is partially funded by the Keyser endowment.

PEER TEACHING

Another program, only two years old, identifies students in some of our first-year courses and organizes them to tutor some of their classmates. Again we have two programs running, *The Coleman Assistantships and the Poels Assistantships*. These programs operate in two of our large first-year courses, MATH 111 and MATH 121 and operate through Expendable Funds. The first of these was given in the memory of

ALBERT JOHN COLEMAN (1918 – 2010)

John Coleman was a giant of a man in Queen's mathematics. Revered by scores of students, John was Head of the Department from 1960 to 1980. Following that he went to Ottawa for a year to consult continued for the Federal Government and then had a fine run as a Liberal candidate, almost taking the Kingston federal seat from Flora MacDonald.

Going back to his undergraduate days at UofT, the team of John Coleman, Nathan Mendelsohn and Irving Kaplansky gave Toronto the top score in the inaugural Putnam exam. Following his graduate studies at Princeton and Toronto, he spent four years as University Secretary of the World Student Christian Federation in Geneva, visiting 100 universities in 20 countries and writing a book on *The Task of the Christian in the University*. At that time he met his wife, Marie Jeanne de Haller, a Swiss Theologian, and a wonderfully kind, gentle and wise woman, who died in 2006. In the early 60s he chaired the Ontario Mathematics Commission which effectively brought the "new maths" to Canada, and John co-authored a set of high school text-books. In the 70s, he served as Chair

EXPLORE MATHEMAGICS! MATH CAMP FOR GIRLS

Explore Mathemagics!, the Queen's Math Camp for Girls, was held in late August 2011, for 15 local girls entering grades 9 to 11. The emphasis was on problem solving, particularly in areas of mathematics not normally covered in the curriculum. The program, coordinated by **Maja-Lisa Thomson**, was developed and run by Queen's graduate students **Charlotte Haley, Gina Hochban, Asia Matthews, Emily Redelmeier, Caroline Seguin, and Anastasia Zaytseva** and undergraduate students **Brigitte Stepanov** (Math) and **Rebecca Carrington** (Math Engineering).

John Coleman (see story below), and the second, by the Poels' family, in memory of **Gregory Poels** (B.SC.Hons. Computing & Mathematics '09), who died suddenly shortly after obtaining his degree.

One of the big thrusts of the University's new Academic Plan is "community," in all its many forms, and these programs certainly strengthen the sense of community in the class.

Marie Jeanne and John Coleman

of the Citizen's advisory committee to Millhaven Penitentiary. For many years in the 60s and 70s he ran a biweekly evening seminar on Christian Theology for 12 students in their second year who took turns giving papers on books they had read. It was a landmark experience for all those who were fortunate enough to be part of that.

Alfred North Whitehead was John's ultimate authority in many matters, e.g. in education, but towards the end of his life John found himself gripped by Whitehead's theory of relativity as an alternative to Einstein. He was sure it was right; furthermore that it could explain dark matter. But he felt himself running out of time.

A teacher from LEAP (Limestone Education through the Arts Program), **Dawn Diamond**, helped with a line-dancing project exploring the relationships between math and music. Graduate student **Wesley Burr** and his wife designed and set up the website and poster.

Topics explored included modular arithmetic, number theory, coding and information theory, cryptography, probability and geometry. Most of the students were enthusiastic about their experience.

Problem-solving was the girls' favorite activity and it was tested at the beginning and end of the camp. The girls liked the timing of the camp as they got their brains in learning mode before school started, while having fun.

We are always looking for good problems for future years. Contact: majathom@mast.queenus.ca.

ALUMNI NEWS

Nithum in front of his college

NITHUM THAIN (Math '06)

In 2010 it was announced that Nithum Thain had won a Rhodes Scholarship, and for the past year he has been studying at Balliol College Oxford working on an MSc. in game theory. Nithum writes about his experience:

I feel incredibly privileged to have the opportunity to study at Oxford on a Rhodes Scholarship. It is been a chance for me to learn and grow and connect with an extraordinary community of peers. Every day is a flurry of activity, whether it be poring over textbooks in historic libraries, dressing up in gowns for formal dinner, or attending talks held by world-famous speakers. This year, we have been taught about leadership by Patrick Pichette, learned about the end of apartheid by F.W. de Klerk, and reviewed the changes to campaign finance law in the United States with Russ Feingold. These experiences, and the discussions with other students that follow, are challenging the way I view the world and forcing me to re-evaluate what my own role will be. I am grateful to Queen's for nominating me for this scholarship and preparing me for this chapter of my life.

KATHLEEN GOSLIN (Math/Physics Con-Ed '05) describes

her jaunt from Queen's and back. After graduating I spent three years teaching in Colombia and then three more teaching high school in Belleville. I was paired with an excellent mentor who taught me the fundamentals of Differentiated Instruction (DI): to focus on one or two aspects of my teaching practice and then to watch how it can eventually spread to all aspects. My DI journey moved me into developing curriculum-grounded three-part lessons (Minds On, Action, Consolidation). I refocused my lessons around an activity, introduced more explorative technology (geoboards, graphing calculators, wipeboards, etc.) that make use of the internet capabilities that every student seems to have. My current focus is on 21st-century learning and skills and how to create these skills in my students. This has led me back to Queen's to begin my M.Ed.

JENNY WILSON (Math '09) coordinated

the Math Investigations Program in her final year with us. She went off to Chicago and, well, we'll let her report:

I'm wrapping up my second year in the PhD program at the University of Chicago. Since completing my 'topic exam' last quarter, on "the cohomology of configuration space

Jenny hiking the Niagara escarpment

and representation stability," I've begun a project on the cohomology of a group related to the braid group. It's been both a challenge and a pleasure to shift from the undergraduate focus on coursework, assignment crunches and exams, to the longer-term and more nebulous goals of mathematical research. I think fondly of my years at Queen's, and send my best to everyone there.

MEGAN OWEN (Mathematics and Engineering '03) reports:

I'm currently a Fields-Ontario Post-doctoral Fellow at the University of Waterloo. In my research, I develop mathematical tools for biologists to use to evaluate the phylogenetic

(evolutionary) trees that they reconstruct. For example, these tools could help determine if a biologist has gathered enough genetic data to reconstruct a reliable phylogenetic tree. It's a challenge to find methods that are both mathematically and biologically sound! I love being able to apply what is sometimes considered "pure" math to real world problems.

MATH AND ENGINEERING '80 REUNION July 2010

Thanks to Gillian Woodruff for organizing the event and tracking down the photos!

(left to right) Peter Durant, Ross Ethier, Barbara Wyslouzil, Brad Ross, Lisa Willner, Frank Dixon, Janice Jeffs, Daphne (Breurkes) Snelgrove, Tim Venus, Gillian Woodruff

MATH&ENGINEERING '71 held their 40th reunion in October 2011 (*not* the official homecoming but there *was* a football game) and these three characters were prowling around Jeffery Hall on Saturday morning hoping to find someone around.

(left to right) Bill Marshall, Ron Dimock, Peter Taylor and Kevin Holloway

OPPORTUNITIES FOR SUPPORTING THE DEPARTMENT

There are lots of quite interesting opportunities for participating in the life of the Department by making a gift. And it's easy. Go to the Office of Advancement's secure website: **www.givetoqueens.ca/mathstats**.

As you have read, many of the opportunities we proudly offer our students are supported in large part through gifts from alumni and friends; thank you for making a difference through your generosity.

If you have any questions or are interested in lending your support, please contact Peter Taylor at peter.taylor@queensu.ca.

For more information, please visit: **www.mast.queensu.ca/ideas-for-supporting-math-and-stats-at-queens**.

In the middle of a page there's a square picture A. Elsewhere on the page is a copy B of A, but reduced in size and rotated through some angle. Draw a line from each A-corner to the corresponding B-corner. Now imagine four points starting at the four A-corners at t=0 and travelling at constant (but different) speeds along the four lines, all arriving at the corresponding B-corners at t=1. Is it true that those four points, as they were moving, always traced out a square?

Send solutions or new problem suggestions to peter.taylor@queensu.ca. Solutions will be posted on **www.mast.queensu.ca**.

NEW PROBLEM

If you received this edition of the *Communicator* by post and want to receive an email notification for future issues, please update your contact information on the Queen's Alumni homepage www.queensu.ca/alumni/index.html (click on Update Your Address) or email mathstat@mast.queensu.ca