



Studying Abroad in Scotland

By Abram McCormick

During the last school year, I had the privilege to complete my third year of undergraduate study at Strathclyde University in Glasgow, Scotland. Strathclyde is well known for its applied sciences and mathematics courses, and I was able to take numerous classes towards my mathematics degree. With my option being Education, I even worked out an arrangement to observe in a Scottish high school to satisfy my "C & I 200" requirement.



Abram (far left) with roommates at the Ring of Brodgar, Orkney Islands, Scotland

Universities in the United Kingdom are run quite differently from those in the US, and it took me a while to get used to them. First of all, I was very surprised at how large their upper-division math courses are. Most of the classes were held in lecture halls with over 100 students and very few discussions took place. The content of the lectures was very good however, and I learned a lot about a whole range of mathematics. Also, there was very little homework, and nearly the entire semester grade came from the final exam. This led to a lot of studying during the exam period, but it also gave me plenty of time to visit the country of Scotland (and beyond) during the school year.

Nearly all of my adventures took place with my roommates of an apartment style student hall. Over the two semesters I had eight different roommates from all over the globe. They came from Greece, France, Spain, Japan, Canada, and the United States, and I met people from many other countries as well. The mixing of cultures was a great experience, and we all became good friends and had the best of times exploring Scotland,

(Continued on page 3)

In This Issue

My Weekend of Math in Nebraska	3
Alumni News	3
Department News	4
Honor Roll of Donors	5
Scholarship & Award Winners	5
Degree Recipients	6
Alumni Response Form	7

And quite a bit more!

Alumni Profile: Aaron Luttmann, PhD '06

By John Bardsley

Due to our faculty's breadth in research and our department's small size, our PhD program is able to provide its students with a well-rounded PhD in a friendly environment. The eclectic atmosphere of UM Math occasionally attracts a truly exceptional student.

Such was the case with Aaron Luttmann, who came to UM in the fall of 2004, on leave from a faculty job at Bethany Lutheran College in Mankato, Minnesota. Aaron's goal when he arrived at UM was to finish his PhD promptly. With a Masters degree in hand from the University of Minnesota, a significant amount of research experience, and UM Math's flexible requirements, he was able to do just that.



Aaron received his PhD in 2006, under my and Emily Stone's direction, with a thesis focusing on computational PDEs applied to a video segmentation problem in plant biology. During his UM years, Aaron also conducted research with Professor Thomas Tonev and fellow graduate student Scott Lambert in the pure mathematics area of analysis, and specifically, Banach

(Continued on page 4)

A PhD Student Describes his Research in Applied Mathematics

By John Goldes

In the spring of 2001 I enrolled as an undergraduate chemistry major at The University of Montana. Two years later, I changed my major from chemistry to mathematics. In the spring of 2005 I received my B.A. in mathematical sciences and a minor in chemistry. That spring and continuing into the fall of 2005, when I started my graduate program in applied math as an advisee of Professor Bardsley, I worked on a project under the supervision of Professor Emily Stone that involved optimizing the performance of real-time Polymerase Chain Reaction (PCR). PCR is a process in which a sequence of DNA is replicated and it is used in DNA testing to copy a sequence of interest enough times that the concentration of it in a solution can be detected. My work on



(Continued on page 5)

Notes from the Chair

I would like to start with the warmest congratulations to the recipients of this year's mathematical sciences degrees: 21 undergraduate degrees, 3 MAs and 5 PhDs (including 2 PhDs from UM's Interdisciplinary PhD Program, whose work was directed by faculty members from our department).

We expect another 7 PhDs to be awarded during the next academic year. Such an unusually high rate of PhD production is the result of long term planning and the changes in our graduate program related to a higher percentage of PhD students (vs. MA students) among our graduate student population. The very spectacular increase came at a cost: since the PhD students stay longer in the program, they usually take fewer classes closer to the time of their thesis defense. This, in turn, starts to affect our graduate course offerings that are subject to strict minimal enrollment limits. During the next academic year the department will need to revisit the question of the optimal ratio of PhD and MA students in our program that will maximize the production of degree recipients and at the same time allow us to consistently offer a large number of graduate courses.

During the next academic year several faculty members will be absent from the department: Jon Graham, Emily Stone and John Bardsley were awarded sabbaticals, and Solomon Harrar will participate in an international faculty exchange. It is remarkable that Emily and John will both be visiting universities in New Zealand (John for the whole year, and Emily for one semester).

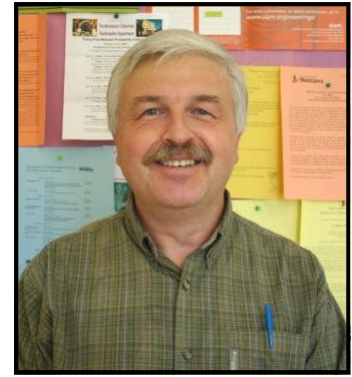
Our search for a new lecturer has been successful: we are happy that Cindy Leary

will be joining the department starting in the fall of 2010. Cindy has graduated from our department with an MA in 2006 and she has taught STAT 216 (formerly known as MATH 241) here during the last academic year. I would like to welcome Cindy on behalf of the entire faculty.

At a time when state funding is constantly decreasing we are relying more and more on the support of our generous donors whose gifts during the past year funded numerous essential activities in our department including student travel, student awards and scholarships, invited lectures, and many others. Without charitable contributions from our donors many of these activities would not have been possible. Somehow, the Foundation did not provide us with the list of last year's gifts and the names of our donors until very recently. I want to apologize for the delay with sending Thank You letters to everyone who supported the department during the last year, and I would like to take this opportunity to thank once again all of last year's and this year's donors for their generosity!

My first academic year as the department's Chair is going to be over soon. During the past year I learned a lot of new things about how the department operates, and I enjoyed communicating with the faculty and students on resolving everyday issues. I am thankful for the advice and guidance that the faculty members gave me, and I look forward to the next academic year and to a chance at managing the challenges that it will bring, especially budget related ones.

I wish everyone a great summer!

Department of Mathematical Sciences
Math Building
University of Montana
Missoula, Montana 59812-0864
406-243-5311
<http://www.umt.edu/math>

Faculty:

Leonid Kalachev, Chair
Jim Hirstein, Associate Chair-
Graduate Program
Nikolaus Vonessen, Associate Chair-
Undergraduate Program and
Newsletter Editor

John Bardsley, Applied Mathematics
Rick Billstein, Mathematics Education
Eric Chesebro, Topology
Lauren Fern, Lecturer
Jon Graham, Statistics
Jennifer Halfpap, Analysis
Solomon Harrar, Statistics
Jim Hirstein, Mathematics Education
Leonid Kalachev, Applied Mathematics
Mark Kayll, Combinatorics
Kelly McKinnie, Algebra
Jenny McNulty, Combinatorics
George McRae, Optimization
Ke Norman, Mathematics Education
David Patterson, Statistics
Greg St. George, Analysis
Regina Souza, Lecturer
Bharath Sriraman, Mathematics Education
Brian Steele, Statistics
Emily Stone, Applied Mathematics
Karel Stroethoff, Analysis
Thomas Tonev, Analysis
Nikolaus Vonessen, Algebra

Staff:

Michelle Johnsen, Office Manager
Linda Azure, Administrative Associate
Leslie Shank, Administrative Associate and
in charge of Newsletter Production
Guy Shepard, Computer Systems Admin

Faculty Emeriti:

William Ballard	Don Loftsgaarden
Mary Jean Brod	Johnny Lott
Charles Bryan	Robert McKelvey
Bill Derrick	William Myers
Rudy Gideon	Howard Reinhardt
Stanley Grossman	Carol Ulsafer
Gloria Hewitt	George Votruba
	Keith Yale

2010 Summer Math Camps at UM

These programs are taught by Bonnie Spence (243-4808). Registration forms are available on the math department's web site, <http://www.umt.edu/math>.

Recreational Mathematics for Grades 5-6

9 a.m. - 12 p.m., July 26-30, 2010 (\$75)

Students of all math abilities are welcome to experience the fun of mathematics through strategy games, puzzles, art, and logic. This camp is for students who will be entering 5th or 6th grade in the fall.

Advanced Math Camp for Grades 7-8

9 a.m. - 12 p.m., August 2-6, 2010 (\$75)

This is our 4th annual math camp for middle school students interested in pursuing advanced mathematics. The camp is geared toward students entering the seventh and eighth grades in the fall. Activities during the week focus on broadening students' mathematical knowledge, exposing them to mathematics beyond the regular curriculum, and building problem solving skills for competitions such as Mathcounts.

My Weekend of Math in Nebraska

By Stephanie Bell

*In the last newsletter, math major **Stephanie Bell** wrote about her adventures in Biology. This time she tells us about her experiences attending a conference for undergraduate women in mathematics. Her trip was made possible by donations to the math department's gift fund, which paid for her airfare.*

Recently I've made a big step and decided that I think, I might sometimes, be indecisive and ambivalent... maybe. Then the math department kindly sent me to the Undergraduate Conference for Women in Mathematics in Lincoln, Nebraska, and I definitely made a solid decision. There, I decided for sure that I wanted to go to graduate school.

If I hadn't met so many mathematicians in Lincoln, I don't know if I would have made that decision so concretely. The conference was a weekend full of math, people who loved math, and more talk about math. It was a lovely weekend! The agenda was full of interesting talks, some presented by professors, but mostly by other students like myself. We also had panel discussions, and various workshops. One time we broke into smaller groups and we all just got to fire any questions we had about math and non-math to the organizers and volunteers of the conference. The conference offered something for anyone; regardless of their decision on graduate school, opinion on summer research, or even just what jobs you can get being a mathematician without going to graduate school. They didn't tell us what we were supposed to



do; they just were very helpful to tell us some of the many options we had as mathematicians.

Although the organizers and volunteers there were very helpful, one of the most beneficial aspects of this conference were the connections I made with some of the girls there. In one weekend I established a friendship that was very different from any others I have made. On my flight there I met an awesome girl named Aviva on her way to the conference as well. We started talking and I learned she was going to graduate school in Arizona to study math. I spent most of my (limited) free time from the conference talking to her about life in grad school, how she knew she wanted to go, how she picked schools, how she knew what she wanted to study, and she told me every other aspect of grad school I didn't even know I didn't know but I'm glad I now know. It was super beneficial to me to get this one-on-one experience with someone who was in my position just a few years ago.

My weekend was a very positive experience and I would highly recommend this conference to any undergraduate female mathematician; whether she maybe might not have possibly completely figured everything out, or she's just not sure about what she can do as a math major, or if she knows and just wants to network. I got lucky by meeting Aviva, but I'm sure she wasn't the only awesome mathematician there. Finally, I would like to say that I very much appreciate everyone at the conference that helped me by exposing me to my options and therefore helping me know that I wanted to go to graduate school. (Now I if I only knew *where* I wanted to go or for *what!*) Thanks to everyone who contributed to making my trip possible!

Alumni News

Until recently, **David Goldsmith** (M.A. 1998) was the Documentation Editor for NumPy and SciPy, which are open-source packages for scientific computing that use the Python programming language. You can learn more about these tools at <http://www.scipy.org/>. David, whose Skype ID is d.i.goldsmith, lives in Olympia, WA. The editor cannot resist adding that David's email signature consists of a set-based definition of a mathematician: "someone who disavows certainty when their uncertainty set is non-empty, even if that set has measure zero."

After eleven seasons in the NFL, and several years as a mathematics teacher and head football coach at his former high school in Silverton, Oregon, **Scott Gragg** (B.A. 1995) is back at UM, as the tight ends coach for the football team. Welcome back, "Lurch"!

Scott Jones (B.A. 2001, M.A. 2002) moved back to Montana and now resides in Kalispell. He is still a consulting actuary

at Milliman Inc.'s Seattle office, which he joined in 2002. Welcome back home, Scott!

Since late last fall, **Sharon O'Hare** (B.A. 2005, M.A. 2007) has been the executive director of the new UM Office for Student Success, which coordinates student support services such as advising, tutoring, the Learning Commons and other retention programs. Congratulations!

Don Sward (B.A. 1957, M.A. 1958) retired in 1991 after 3 years with Boeing in Seattle and 30 years with IBM in Los Angeles. He then taught math 4 years off and on at Front Range Community College in Westminster, Colorado. Now he is relaxing with occasional fishing trips, photography and spending time with family. He added: "I owe much to the faculty at the Department of Math. They gave me the knowledge for a successful career in a competitive environment!" What a nice compliment for the faculty who taught here over 50 years ago! I hope we are

doing as good a job nowadays.

*Please send in your news; we're always glad to hear from you, and **your classmates and professors would love to read about you** in this column. Upon request, we are happy to include a phone number or email address, to make it easier for former class mates to get back in touch with you.*

(Continued from page 1 - "Studying Abroad")

England, Sweden, Finland, and Greece. One of the most memorable trips was to the Orkney Islands, where we covered almost every inch of the main island in less than three days. It was amazing how such a small island had so many different and beautiful landscapes, and also how friendly the locals were. We received free coffee and shelter during a rainstorm, visited with shop owners, and hitchhiked back to our hostel when the bus service

(Continued on page 4)

(Continued from page 1 - "Alumni Profile")

algebras.

Aaron's path to UM is a fascinating one. He was born in Mankato, Minnesota in 1977, and he lived in Missouri, New York, Illinois, and Wisconsin before the age of 15, at which point his family moved to Plzen, Czech Republic (home of Pilsner-Urquell) to serve as missionaries for the Lutheran Church.

After attending Czech high school for one year—a very challenging experience from Aaron's telling—he returned to Mankato and obtained an associates degree from Bethany Lutheran College in 1996. He then went on to Purdue University, where he was a member of the water ski team and received a degree in Mathematics (Physics minor) in 1998. Aaron then attended graduate school at the University of Minnesota, obtaining a Masters degree in 2000.

During the following four years, Aaron worked as a researcher in image processing and vision science for Pointcloud Inc. in Plymouth, Minnesota and then at VISICS research lab at Katholieke Universiteit Leuven in Leuven, Belgium.

Just prior to moving to Missoula in the summer of 2004, he married Susannah Lawrenz in June 2004.

Since his graduation from UM in 2006, Aaron has achieved a remarkable level of success in a short period of time. After graduating from UM, he returned to Bethany Lutheran College, where he continued to conduct research (both in applied mathematics and analysis) despite a heavy teaching and service load. During these two years, he designed the entire upper-level mathematics curriculum and got a mathematics major approved by the faculty.

However, Aaron's passion for research was better suited to a research-level institution with a graduate program, and so he re-entered the job market in 2008. His hard work over the previous years paid off, and he obtained a tenure track position at Clarkson University in Potsdam, New York, where he currently resides.

At Clarkson, Aaron's research has flourished. He already has ten published papers, with several more in review or in preparation. His applied research is currently focused on applications of imaging science to dynamical systems modeling (funded by the Office of Naval Research), fluid dynamics, and climate change analysis, and he continues to publish papers in functional analysis.

Aaron's dedication to education and popularity with students is also evident. In addition to designing courses in functional analysis, Galois theory and the Senior Capstone Seminar, he currently has two PhD students working in image processing and one PhD student working in analysis. He is also advising undergraduate research projects on climate change analysis, functional analysis, using video to model the physics of skateboard ramps, and dynamical systems modeling from images. This summer he is directing a project with four students in the SUNY Potsdam – Clarkson University mathematics Research Experience for Undergraduates program.

Remarkably, Aaron has also made an impact in the broader mathematics community through service. He is a member of the editorial board of the Central European Journal of Mathematics, the Mathematical Association of America Committee on Graduate Students, and the Editorial Board of the Young Mathematicians' Network. He also organized two panels at the 2009 Joint Math Meetings, two panels at the 2010 Joint Meetings, and he is active in helping students prepare mathematical presentations, as he has run presenting workshops for undergraduate students at different locations in New York and Connecticut, as well as a related workshop for graduate students at Mathfest 2009 (which will run again at Mathfest 2010). Finally, he is the faculty advisor to the Clarkson student chapters of SIAM and Pi Mu Epsilon.

It is exciting to see how far Aaron has come in such a short time. We are certainly proud of him here at UM Math and look forward to observing his continued success.

Department News

Montana Tech Assistant Professor **Sally Bardsley**, of the Department of Safety, Health, and Industrial Hygiene, and mother of Associate Professor John Bardsley, earned her doctorate in education at UM this spring. Congratulations!

Associate Professor **John Bardsley** and Professors **Jon Graham** and **Emily Stone** were awarded sabbatical assignments for the coming academic year to enable them to concentrate on their research. John Bardsley will be visiting the Physics Department of the University of Otago in Dunedin, New Zealand, from August 2010 through June 2011. Jon Graham will be based in Missoula, with extensive visits to research centers in Chile and Italy. He will also be doing research with Neptune & Co. in Colorado. Emily Stone is spending the fall semester at the Center for Structural and Functional Neuroscience at UM. In the spring, she will also be in New Zealand, visiting the Applied Math Department at the University of Auckland.

In the last newsletter, math major **Morgan Eichwald** wrote about a Research Experience for Undergraduates at the University of Washington, which resulted in a paper written by her and several other students together with their faculty mentor. Since then, two of Morgan's coauthors presented the results at the AMS Session on Discrete Mathematics at the Joint Mathematics Meetings this January in San Francisco, CA.

Graduate students **John Goldes** and **Marylesa Wilde** gave talks on their research at the 2010 SIAM Conference on Imaging Science, which took place in Chicago on April 12-14.

Associate Professor **Solomon Harrar** was awarded a full-year faculty exchange. He will spend the fall semester at East China Normal University in Shanghai, and the spring at Addis Ababa University in Ethiopia.

Professor **Thomas Tonev** spent the spring semester on sabbatical leave visiting various universities in Australia, Japan and Canada. In May, he will participate in an international conference in Edwardsville, Illinois, together with three of his former PhD students.

N.V.



(Continued from page 3 - "Studying Abroad")

was unreliable!

The people I met and the places I saw during my year abroad were once in a lifetime opportunities, and I will never forget them. I learned a lot about math, and even more about different cultures and even learned to speak a little Greek. Next year I plan on going back to Scotland, and I hope to get a teaching job somewhere in the United Kingdom.

(Continued from page 1 - "PhD Student's Research")

this project was supported by a fellowship from NSF EPSCOR.

The research project that I participated in in order to earn my M.A. was a collaboration between a professor in the chemistry department, Dr. William Laws, and my advisor John Bardsley. The goal of the project was to elucidate certain aspects of the structure of biological macromolecules using data that was collected in Professor Laws' laboratory to estimate certain parameters of interest. Ultimately I was unable to assist Dr. Laws in meeting the goals of his project. However my participation in the project was a valuable learning experience.

Parameter estimation is an example of an inverse problem. Inverse problems cover a broad umbrella of problems which are characterized by the desire to estimate some unknown quantity using measurements that are indirectly related to the quantity of interest. My current research for my Ph.D. thesis involves investigating techniques that are employed to solve inverse problems that arise in image processing. A common problem in image processing is to estimate an underlying true image given noisy data. My research is concerned with imaging problems in which the noise in the data is modeled by a Poisson distribution. The Poisson distribution gives the probability of a certain number of events occurring in a fixed time period if the events occur at a fixed rate and the number of events in any two disjoint time intervals are independent. In many imaging problems, the data consists of photon counts (which give a measure of light intensity) recorded with a charge-coupled device (CCD) camera, and the error in the counts is well

(Continued on page 6)

Honor Roll of Donors

Anonymous	Johnny & Carolyn Lott
Duane Adams	Roberta Manis
Sharen Bakke	Stephen Mihina
Bill & Lee Ballard	Bruce & Sandra Mueller
Craig & Valerie Banner	Robert O'Donnell
Andrew Bissell	Champak & Meena Panchal
Ruth Brocklebank	David & Jeanne Sherry
Rod & Mary Jean Brod	Loren Spencer
Renate Bush	Gregory & Jan St. George
James & Kay Coghlan	R. Lynn Turnquist
Borries Demeler	Nikolaus Vonessen & Regina Souza
William & Vicki Fitzgerald	Richard & Carla Welter
Frank Gilfeather	Michelle Wieler
Jeffry & Libby Goldes	Keith & Martha Yale
Bill & Jeannette Gregg	
Francis Hannick	
Mary Hashisaki	
Staci Hemmer	
Gloria Hewitt	
Jim Hirstein	
Al & Carole Kelley	



2010 Spring Scholarship and Award Winners

Joseph Hashisaki Memorial Scholarship

Stephanie Bell

Anderson Mathematics Scholarship

Elijah Bodish

CAS General Scholarship

Adam Clinch

Mac Johnson Family Scholarships

Erinn Della
Kelly McGonigal
Hannah Stanton

N. J. Lennes Competition

Stephanie Bell

Undergraduate Teaching Scholar

Stephanie Bell

Undergraduate Tutorial Scholars

Erika Blough
Lucy Muragin
Kinnsey Reilly
Sharee Russell
Samantha Werme

Graduate Student

Distinguished Teaching Awards

Nicolas Haverhals
Mary Riegel

Graduate Student

Summer Research Awards

Nicolas Haverhals
Jordan Purdy
Liam Rafferty
Mary Riegel
Matt Roscoe
Marylesa Wilde

John A. Peterson Awards for Mathematics Education

Jade Roskam
Andrew Selle

Mortar Board - Outstanding Senior

Katherine Banner—Statistics
Joshua Campbell—Pure Mathematics
Nicole Crouch—BA in Mathematics
Amber Jessop—Applied Mathematics
Faith Morrison—Pi Mu Epsilon
Jade Roskam—Mathematics Education



Degree Recipients 2009-2010



BA in Mathematical Sciences

Katherine M. Banner
Jessica K. Benedict
Ahn-Thy J. Boyd
Joshua Campbell
Nicole M. Crouch

Maxim D. Dorsi
Anna C. Duncan
Morgan J. Eichwald
Amber M. Jessop
Sarah B. Kitzen

Ryan J. Morehouse
Faith H. Morrison
Whitney I. Oliver
John P. Parente
Teddi Jo Roberts

Jade M. Roskam
Andrew C. Selle
Keith E. Steele
Jason P. Stewart

BS in Mathematical/Computer Sciences

Joshua Campbell

Justin P. Wiseman

MA in Mathematical Sciences

Peter L. Kinnecom
Andrew M. McDonald

A Survey of Konig-Egervary Graphs
Logistical Regression & Zero-Inflated Poisson Models for
Smoking Cessation Trials

Stephen W. Schutten

Ice Sheet Modeling: Rescaling the Computational Domain
for Full Stoke Models

Advisor

Mark Kayll
Solomon Harrar

John Bardsley/
Jesse Johnson

PhD in Mathematical Sciences

John Chandler-Pepinjak

Modeling Conversions in Online Advertising

John A. Goldes

Regularization Parameter Selection Methods for
Ill-Posed Poisson Control Imaging Problems

John W. Hart

Simple Two-Sided Rational Vector Spaces of Rank Two

Advisor

David Patterson/
Brian Steele
John Bardsley

Adam Nyman

PhD—Individualized Interdisciplinary Program

Erin Landguth

Mathematical & Computational Applications in Disease
& Landscape Ecology

Peter J. McCauley

Fatigue Risk Management: Modeling the Sleep/Wake
Dynamics of Performance

Advisor

Emily Stone

Leonid Kalachev

(Continued from pg 5 - "PhD Student's Research")
modeled by a Poisson distribution. An estimate of the true image can be obtained by solving a non-negatively constrained minimization problem, the form of which is determined by the data-noise model. It is frequently the case that the estimate is sensitive to the noise in the data - slight perturbations in the data lead to large errors in the solution. Such problems are referred to as ill-posed and a technique known as regularization is employed in which a related problem is formulated that yields a solution which is stable. A common regularization method is to add a term, known as a penalty term, to the function that is to be minimized. The form of the penalty term affects the nature of the solution and any prior knowledge that is available of the image of interest should be used in choosing the form of the penalty term. Of particular interest are penalty terms which allow for the reconstruction of images that are smooth with the exception of regions that contain sharp jumps in intensity (for

example at edges). Regularization also introduces a new parameter, and another focus of my research is to adapt existing, statistically motivated methods for selecting that parameter in problems in which the data noise follows a Gaussian distribution to problems in which the noise is described by a Poisson distribution.

I applied the framework for solving ill-posed Poisson estimation problems to two different examples: astronomical imaging and positron emission tomography (PET). The inverse problem in astronomical imaging arises when a picture of an object in outer space is taken using a ground-based telescope. The resulting blurred, noisy image is then used to estimate the true image. In PET a solution containing a given metabolite which has been tagged with a radioactive isotope is injected into a patient. This enables the tracking and uptake of certain metabolites. When the isotope decays it emits a positron which annihilates with an electron causing a pair of photons to

propagate in opposite directions. If the photons reach two different detectors in a sufficiently short period of time an event is recorded along the connecting line, known as a line of response (LOR). A PET data set (known as a sinogram) therefore consists of the event counts for the LOR's and the inverse problem that must be solved is to reconstruct the unknown tracer density from the noisy sinogram.

My experience as a graduate student at U of M has been very rewarding and I am very grateful to my advisor Professor Bardsley for all the help and guidance he has given me.

Ph.D. student John Goldes (B.A., 2005, M.A., 2007) graduated this May.



Alumni Reply Form

Please complete and return this form, including professional or personal news.

If you prefer not to "mutilate" your copy of the newsletter, you can download this form at <http://www.umt.edu/math/Newsltr/>

Name _____ Degree(s) & Year(s) _____
 Residence Address _____ Home Phone _____
 City, State, Zip _____ E-mail Address _____

Information About Yourself:

I do not wish to have this information in the Newsletter.

Return to: Alumni Response
 Department of Mathematical Sciences
 The University of Montana
 Missoula, MT 59812-0864
 or email to: leslie.shank@mso.umt.edu

The Department of Mathematical Sciences increasingly relies on donations to support its activities. With tuition increases continuing to outpace inflation, scholarships are vitally important. Scholarship and other existing funds that help to meet some of the educational needs of the department and our students are:

- Joseph Hashisaki Fund** - an endowed scholarship for one or two upper-class math majors based on academic achievement;
- Mac Johnson Family Fund** - endowed scholarships for undergraduate students showing promise in mathematics;
- George and Dorothy Bryan Endowment** - an endowment in support of undergraduate and graduate students;
- Lenes Fund** - an endowment to provide funds for the Lenes Exam;
- Colloquium Fund** - an endowment to provide funds to bring in visiting speakers.

Please consider a gift to one of these funds or to the **Math Department's Excellence Fund** to be used where the need is greatest.

The University of Montana, Department of Mathematical Sciences, Missoula, MT 59812-0864

Name _____
 Residence Address _____
 City, State, Zip _____

Matching gift
 My employer will match my gift.
 Matching gift form enclosed.

I/We intend to give \$ _____ to the Department of Mathematical Sciences Excellence Fund
 I/We intend to give \$ _____ to the Department of Mathematical Sciences for _____
 I/We intend to give \$ _____ to the University's overall Excellence Fund

Credit Card: Visa MasterCard American Express Discover
 Signature _____
 Account Number _____
 Expiration Date _____

**To donate online,
 please visit
<http://www.umt.edu/math>**

Please make checks payable to The University of Montana Foundation.

For information on other ways to give, contact
 Kelley Willett, Director of Development & Alumni Relations for the College of Arts and Sciences, 1-800-443-2593

In honor of Math Awareness Month, Professor David Zitarelli of Temple University gave a colloquium talk titled "N.J. Lennes, Montana, and Mathematics in the U.S. 1892-1922" on April 19. You can read more about this subject in Dr. Zitarelli's interesting article in the April 2009 issue of the Notices of the American Mathematical Society found at <http://www.ams.org/notices/200904/>. As you probably know, N.J. Lennes was the chair of UM's math department from 1913 to 1944. After the talk, some of the older attendees gathered in front of the math building for a photo with Emma Lommasson, who had been the assistant of N.J. Lennes for many years.



**Front: Charles Bryan, Bill Ballard, Emma Lommasson, Gloria Hewitt & Carol Ulsafer.
Middle: George Votruba, Bill Myers, and Howard Reinhardt.
Back: Rick Billstein and George McRae.**



The University of
Montana

Department of Mathematical Sciences (MMAI01)
Mathematics Building
Missoula, MT 59812-0864
Phone: 406-243-5311
Website: www.umt.edu/math

NON-PROFIT ORG.
**U.S. POSTAGE
PAID**
MISSOULA, MT 59812
PERMIT NO. 100

