University of Idaho

Mathematics News

2010-2011 Academic Year

Letter from the Chair

The 2010-2011 academic year has been one of transitions, challenges and successes. Larry Bobisud, a long time faculty member who retired ten years ago, passed away and Hunter Snevily finished a 20 year career on the faculty through early retirement due to poor health. Details about each appear elsewhere in the newsletter. Our new faculty members, Somantika Datta and Linh Nguyen (both introduced in last year's newsletter) have brought great energy and fresh ideas to our research and teaching missions. Linh spent a semester at the prestigious Mathematical Sciences Research Institute at Berkeley and Somantika was chosen as a Project NEXT fellow in the Mathematical Association of America's program designed to develop the professorate for the next generation. Somantika also was awarded a research grant from the Air Force. Hirotachi Abo and Zaid Abdo received well deserved promotions to Associate Professor with tenure. The external evaluations (by top mathematicians around the world) of the impact of Hiro and Zaid's research confirm that they are each internationally recognized leaders in their respective fields. The fact that both of these individuals are deeply committed to their students is one of the many reasons why students who choose to come to the University of Idaho are making a great choice. Elsewhere in the newsletter are accounts of wonderful achievement by many of our faculty this year. We finished a very successful search for a new faculty member, starting in the fall, in the area of Number Theory, Algebra and Combinatorics with the hiring of Alexander Woo who is introduced elsewhere in the newsletter. I am very excited that he will add the research traditions of UC Berkeley and the teaching traditions of St. Olaf to our department.

Our students have also excelled this year. We graduated 25 undergraduates and 13 graduate students. We are proud of all of our graduates but Andrew Wixom and Kiri Oler were so outstanding that they shared the honor of being the outstanding graduating mathematics students. Kiri Oler was further recognized as the outstanding graduating student from the College of Science by receiving the prestigious John B. George Award.
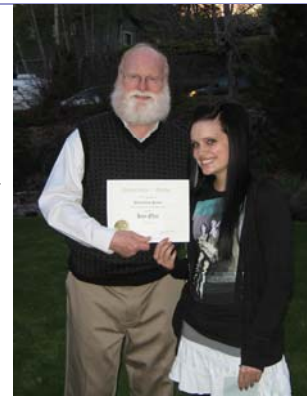
I don't need to chronicle the financial challenges facing our department as I think all of us are aware that things are tough. In the face of those challenges, we are very appreciative of the many of you who generously support our department with your gifts. Over this last year, it was my great fortune to meet and thank, in person, some of the angels who are providing extraordinary support. Kay Misterek, whose scholarships support outstanding graduate students, welcomed Doug Torrance (this year's scholarship recipient), Dean Wood and me to her home. I shared a meal with Clancy and Barbara Potratz who are supporting a scholarship aimed at future math teachers. Larry and Kaye Knight have made a major donation that will enable us to hire a Math-Ed faculty member jointly with the College of Education. Diana Johns also provided support to our scholarship fund and the Polya Math Learning Center. Both Larry and Diana serve on the College of Science Advisory Board on which I also serve. It is my hope that all of these wonderful people understand how committed we are to being good stewards of their generous gifts. Opportunities to join these people and our many other donors in supporting the department are presented elsewhere in the newsletter and on our website.

The department continues to be committed to the success of mathematics education throughout the gem state. Through our Gateway to Calculus initiative and other dual credit courses, we are giving an opportunity to all Idaho students to take advanced mathematics coursework. Even the students who live in the most rural areas of the state can participate. We provide leadership to the Idaho Science, Mathematics Technology Coalition enabling us to participate in a number of statewide math initiatives. In particular, UI led the effort to make sure that all math teachers in Idaho middle schools are fully qualified to teach middle school math.

Remembering Larry Bobisud

Article prepared by Ralph Neuhaus

Larry Bobisud died June 6, 2011 after a ten year battle with Parkinson's disease. He held it at bay until four months before his death. He was 71.

Larry was a native Idahoan. His parents were visiting his father's family in Midvale Idaho when he was born on March 16, 1940. His father was a heavy radar field engineer for Bendix Corporation which necessitated frequent moves. Larry went to many elementary schools and high schools before entering the College of Idaho. He graduated from C of I with a bachelor's degree in Physics and Mathematics in 1961 and went to graduate school in Physics at the University of New Mexico. After he received his M.S. in Physics he took a nuclear physics course that was taught so that physics was antipodal to Math. Eventually it occurred to him that he was only interested in physics if it contained Math. He then switched to Mathematics. While at UNM he met Helen Meyer, a young botany student. They were married in 1963. Larry finished his Ph.D. in Mathematics in 1966 with Reuben Hersch as his major professor. He then spent one year on a post-doctoral fellowship at the New York University-Courant Institute, studying with Peter Lax, Reuben Hersh's major professor.

Larry came to UI in 1967 and for 35 years he was known for his research, for teaching interesting calculus courses and for advising Ph.D. students. Calculus was his favorite course to teach and differential equations was his main research area. Differential equations is just an extension of Calculus. Larry was always impressed by the quality of UI calculus students. He had six Ph.D. students: Phillip Engstrom, Tae Do, Young Lee, Kazimirerz Wiesak, Michael Brennan, and Steve Mills. He was a research leader in the department, regularly writing papers by himself, or in collaboration with others. His collaborators include Jim Calvert, Bill Royalty, Leo Boron, Paul Dierker, Clancy Potratz, Charles Christenson, Bill Voxman and D. O'Regan. He even wrote a paper on a metric for taxonomical classification with Helen. He was promoted to full professor in 1974 and, at the age of 38, he became department chair, serving from 1978 till 1982. He was a model of efficiency. When a problem developed he consulted widely, assessed his options, and made his decision. Paper did not linger on his desk. He could have served another term as chair but his ulcer said no. Throughout his tenure at UI he was a respected leader in the department. He retired from UI in 2002.

In his spare time Larry made radio controlled model airplanes and then flew them. When they would eventually crash he would rebuild them. You could hardly notice that they had crashed. He was a member of the Palouse Region Radio Controlled Flyers. When he inherited a lathe and a milling machine from his father he used these to create such things as steam engines and model cannons. He was a regular participant, with his colleagues and graduate students, in the Friday seminar. He was an avid reader, especially of mysteries and science fiction.

Larry is survived by his wife Helen, a botanist and a weaver, and by their sometime cat, Nuisance. Memorials can be made to the Math Department Taylor Scholarship Fund, University of Idaho Gift Administration Office, P. O. Box 443147, Moscow, ID 83844.

Larry and Helen with Unhee Do, the daughter of Tae Do and Young Lee

We would like to hear from you!

If you have some news/information about yourself that you would like printed in the next Math News, please send your information to math@uidaho.edu or to: Department of Mathematics, University of Idaho, PO Box 441103, Moscow, ID 83844-1103.

Please include as much of the following as possible:

- *Name*
- *Year you graduated from UI*
- *Degree and Major at UI*
- *Current Occupation*
- *News about yourself*
- *Comments, corrections, additions for newsletter*

Student Honors Spring 2011

Article prepared by Hirotachi Abo and Monte Boisen

Several of our outstanding students have received recognition for their achievement.

Jacob Bow holds majors in both Mathematics (one of only 24 Goldwater recipient math majors nationwide this year!) and Chemical Engineering and is active in the University of Idaho Honors Program. His diversity of interests has led to opportunities to work in two different research labs on campus. He currently works with Professor Eric Aston (Chemical Engineering) on nanomechanics, and also with Professor Jason Barnes (Physics) on a project for spectral mapping of the surface of Titan (the largest of Saturn's moons). He has been involved in Professor Barnes' team since the end of his Freshman year. Jacob counts his opportunities to participate in research as the most exciting aspect of his experience at Idaho, but he stays grounded with other hobbies and campus activities as well, including blues guitar, martial arts, the Intervarsity Christian Fellowship, and the Fencing Club.

Kiri Oler is the 2011 recipient of the John B. George Award as the outstanding graduating senior from the College of Science. Kiri is from Twin Falls, and came to the University of Idaho after two years at College of Southern Idaho. Kiri was originally majoring in English, but decided to add a Mathematics major after a year at UI. She graduates this spring with an impressive transcript and degrees in both Mathematics and Creative Writing – an interesting combination!
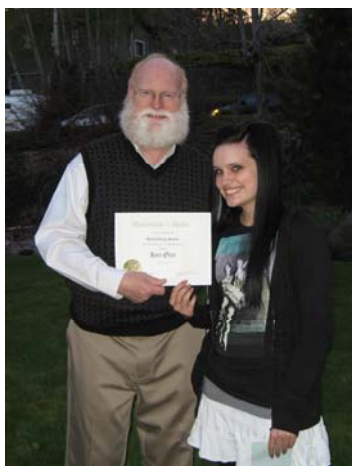
Kiri's rise to become the outstanding graduate of the College of Science this year is a wonderful tale of rising to the top though hard work. In addition to the challenging coursework from two majors, Kiri has worked (half-time or more) at a store in the local mall to put herself through school. She also worked on campus as a tutor in the Polya Math Center. She credits her work at Polya for helping to solidify the mathematics she was learning herself.

As a writer, Kiri enjoys creating fiction in the form of short stories, as well as reflective essays and other forms of "creative non-fiction". Dance (jazz, tap, ballet, and modern) provides another creative outlet for her.

Kiri will now move on to graduate school in Information Security at Johns Hopkins, and looks toward a career in forensics or cyber-security.

Kiri is also one of the recipients of this year's Outstanding Graduating Senior.

Andy Wixom Andrew Wixom was born and raised in Idaho Falls, Idaho where he grew up with his two younger brothers. At a young age he began piano lessons and eventually moved to the double bass, playing with multiple orchestras in the Idaho Falls area throughout high school. During his time at the University of Idaho, Andy's lifelong interest in science and math resulted in majors in both Mechanical Engineering and Mathematics. Having graduated with honors in both degrees, he will begin graduate work at Boston University this upcoming fall. He plans on pursuing his Ph.D. in Mechanical Engineering focusing on acoustics, combining all of his interests. In his free time, Andy still enjoys playing music and participating in sports as well as spending time with friends and family.

Doug Torrance, PhD student from Columbus, Ohio, has been awarded the Nielsen Scholarship for 2011 by the University of Idaho College of Science. The Nielsen Scholarship was made possible by a bequest from Glen and Jean Nielsen with the goal of supporting graduate studies in science and mathematics. The scholarship is awarded to two graduate students within the College of Science each year. Each of the college's seven departments nominates a student for the award, and the winners are then selected by the college's awards committee.

Doug is working towards his PhD with Dr. Hirotachi Abo. His research focuses on combinatorial aspects of algebraic geometry. In addition to outstanding work in the classroom and on his research, Doug is an excellent teacher and has been recognized previously by the Mathematics Department with its outstanding teaching award.

Doug was also one of two recipients of 2010/2011 Arnold Misterek Family Scholarship.

Outstanding Teaching

At the Spring commencement **Amanda Larson, Ben Tschida, Doug Torrance, Michael Shively (not pictured), Michael Logsdon (Not pictured), and Zhenxia Liu** received the Outstanding Teaching Assistant Award.

Amanda Larson

Ben Tschida

Doug Torrance

Zhenxia Liu

Actuarial Science and Finance Club

Article prepared by Zaid Abdo

Dr. Abdo has been working in collaboration with the department of Business to boost substance and enrollment in both the actuarial science/finance option in mathematics and finance in the department of business. This collaboration resulted in adjustments on both programs to make it easy for students to obtain a double major in mathematics/actuarial science option and in business/finance option with only one added semester. We believe such integration will result in better job opportunities for our students after graduation. This effort has also resulted in the establishment of the Actuarial Science and Finance club where students following this joint option or that are interested in these subjects are encouraged to interact and share there experiences. One goal of this club is to seek partnerships with the industry and create possible job opportunities for its members. A direct result of this effort is an increase in enrollment in the Actuarial Science option from about 3-5 students a year to more than 15 last year. Please contact Dr. Abdo at zabdo@uidaho.edu if you are interested in joining the Actuarial Science and Finance Club.

New Graduate Students

James Cockreham received his Bachelor's Degree in Mathematics from University of Alaska Anchorage in 2010. He is pursuing a Ph.D. in Mathematics.

Masaki Ikeda received his Bachelor's Degree in Mathematics from Western Oregon University in 2009. He is pursuing an M.S. in Mathematics

Jesse Oldroyd received his Bachelor's Degree in Mathematics from University of Alaska Anchorage in 2010. He is pursuing a M.S. in Mathematics.

Jonathan Olson received his Bachelor's Degree in Mathematics from the University of Idaho in 2009. He is pursuing a M.S. in Mathematics.

Yijun Wang received his Bachelor's Degree in Financial Engineering from City University of Hong Kong in 2010. He is pursuing a M.S. in Mathematics.

Hamzeh Zbib received his Bachelor's Degree in Civil Engineering from Washington State University in 2009. He is pursuing a M.S. in Mathematics.

Research Collaboration with WSU

Article prepared by Somantika Datta

The department of mathematics is trying to establish some fruitful research collaboration with the faculty of WSU. Currently, two of our faculty members, Somantika Datta and Linh Nguyen, are working with the research group of Thomas Asaki and Kevin Vixie from WSU. It is desired that this effort will result in an active research group in the general area of analysis involving members from both institutions. There is also ongoing effort to attract researchers from other institutions to be part of this group. In this regard, there has been a meeting during 25-29 March 2011 to discuss potential research problems. Two three day workshops, one in May and another in June, has enabled team members to analyze real data provided by Red Rocks Lakes National Wildlife Refuge and Galois Inc. respectively. A description of the activities of this research group including seminars and workshops can be found at

http://geometricanalysis.org/
There is also a joint analysis seminar organized by the two departments and offered as a one credit course for interested students. During 2010-2011 this seminar was co-organized by Frank Gao from our department and Kevin Vixie from WSU. For more information please visit:

http://geometricanalysis.org/KevinVixie/AnalysisSeminar
It is hoped that this seminar will continue in future years.

New Faculty

Alex Woo will join the faculty in the fall of 2011 filling our Mathematics Algebra, Number Theory and Combinatorics Position.

BIRTHPLACE: I was born in New York City. As a kid, I lived for a few years in Hong Kong, then spent the rest of my childhood in New Jersey.

FAMILY: I am single. My parents and younger brother all now live near San Francisco.

DEGREES: I have a B.A. with a double major in mathematics and music from Williams College, a small college in Massachusetts within walking distance to Vermont and a short bike ride to New York. After two years working as a computer programmer, I went to graduate school and did my Ph.D. at the University of California at Berkeley.

RESEARCH AREA : Algebraic geometry and combinatorics. I try to relate solutions to systems of polynomial equations in several variables (frequently thought of as sets of points in space) to arrangements of objects satisfying simple rules. An example of such arrangements might be the ways to arrange 100 people, half with $20 bills and half with $10 bills, in line so that someone selling them $10 tickets and starting with no change can process the whole line without any trouble.

FAVORITE LIVING MATHEMATICIAN: Alexandre Grothendieck. He revolutionized several fields of mathematics in the 1950s and 1960s, then decided that living in modern society was incompatible with his pacifist and anarchist beliefs. He went off and became a shepherd somewhere in southwestern France, and the only reason people think he is still alive is because his pension checks are still cashed.

FAVORITE DEAD MATHEMATICIAN: Gian-Carlo Rota (who was my advisor's advisor). By all accounts (I never met him), he was a generous and witty person with a number of interesting quirks. He is largely responsible for assembling combinatorics into a coherent area of mathematics from what had been only a diverse collection of tricks. Partly through bullying authors (I'm exaggerating) for *Advances in Mathematics*, the journal he edited, he is largely responsible for the return into fashion of the longer, more detailed, and sometimes almost literary introductions in mathematics papers. The one sentence book reviews he stuck at the end of many issues of *Advances* were quite pointed and insightful, especially when he decided to review a book in philosophy, which he also studied and taught. I hope someone has preserved his copies of the philosopher Wittgenstein's books, presumably with his margin notes, probably in some combination of the four languages in which he was fluent.

FAVORITE THEOREM: A conic section is a circle, ellipse, parabola, or hyperbola. Given any 5 conics in the plane, there are exactly 3264 conics tangent to all 5. (Actually, to get that number, you have to allow complex numbers and tangencies "at infinity".) This was proven by Chasles in 1864, and the leading experts on this topic at the time actually disagreed on what the right number is.

FAVORITE AREA IN MATHEMATICS: Synthetic Euclidean geometry, meaning plane and solid geometry done without allowing yourself to refer to points with coordinates. I didn't find it particularly interesting when I learned it in high school, but now I find it fascinating how much can be proven from just Euclid's five axioms (and the several additional axioms that nineteenth and early twentieth century geometers pointed out Euclid implicitly assumed).

FAVORITE AMERICAN FOOD: Fried chicken.

FAVORITE NON-AMERICAN FOOD: Chow mein done properly with the thin noodles.

FAVORITE BOOK: There really isn't just one, but let me pick one. Hermann Hesse's novel *The Glass Bead Game*

FAVORITE SPORT: Cricket. I'm not sure this is really my favorite, but it's an interesting answer. You might wonder how I know anything about this sport; it's because one of my high school teachers was from Jamaica. Nowadays the Internet allows you to follow to goings on in any sport, no matter how obscure or unusual it is where you live.

IN MY SPARE TIME I LIKE TO: play the piano and play bridge

I CAN'T STAND: answering questions about what I can't stand. (Just kidding. You can't really expect me to answer a bunch of questions without the obligatory self-reference paradox, can you?)

I WISH I KNEW: how to procrastinate less!

I WOULD MOST LIKE TO MEET: The British novelist Doris Lessing, though Marilynne Robinson is a close second. If dead people are allowed, the philosopher Ludwig Wittgenstein.

Scholarships Awarded for 2010-2011

Several scholarships are available to mathematics majors. The Taylor, Botsford, Wang and Hower scholarships are awarded to mathematics majors entering their junior or senior year. Total awards for these scholarships are $500, $1500, and $2500. The Mathematics Department Scholarship has no class restrictions. All mathematics majors are automatically considered for a scholarship. Non-mathematics majors are eligible if they change their major to mathematics or add mathematics as a second major. The selection is made by the faculty of the department in March. The generosity of our donors makes it possible to award scholarships to some of our best students. The following students received the following awards for the 2010-2011 academic year:

J. Lawrence Botsford Scholarship

This scholarship was established by the family of J. Lawrence Botsford who was a member of the department from 1949 until his retirement in 1970. He also served as head of the department from 1950 to 1954. This scholarship is based on merit and is awarded to mathematics majors entering their junior or senior year.

***Robert DeLorto* is this year's recipients**

Mathematics Graduate Student Scholarship

This scholarship is supported by annual contributions of friends of the department and is awarded to mathematics graduate students. This one time gift is awarded at the discretion of the Math Department. The recipients this year were:

Zhenxia Liu, Jon Fledderjohann, Michael Shively, James Cockreham, Yanling Peng, Ben Tschida, Jonathan Olson, and Amanda Larson

Eugene and Osa Taylor Mathematics Scholarship

This scholarship was established in 1979 by the family and friends of the first head of the department, Eugene Taylor and his wife Osa. He directed the department from the time he came to the department in 1920 until he retired in 1950. In 1981, his family donated many of his personal mathematics books to the University of Idaho library. This scholarship is based on merit and is awarded to mathematics majors entering their junior or senior year. The recipients of the Taylor Scholarship this year were:

Hieu Trong, Andrew Wixom, Nathan Anderson, Alec Bowman, Christopher Smith, Danielle Milligan, Christopher Ross, Brandt Pedrow, Amanda Downen, Jack Cannon, Audrey Hitchman, Kiri Oler, Meredith Sargent, Michael Wheless, Brian Frederiksen, Hannah Hallo

Ya Yen Wang Memorial Scholarship

A long-time member of the Mathematics faculty, Ya Yen Wang died in January of 1995. Acting on her wishes, her family established the Ya Yen Wang Memorial Scholarship. This scholarship is intended for a junior or senior in Mathematics, preferably to be awarded to a woman. It is based on merit.

***Katherine Phelps* is this year's recipient.**

Leo F. Boron Memorial Fellowship

Established in 1987 by the colleagues and friends of Leo F. Boron. This fellowship is based on merit and need. It is awarded to international students in their first year in the United States.

***Yijun Wang* is this year's recipient.**

Mathematics Department Scholarship

This scholarship is supported by annual contributions of friends of the department and is awarded primarily to freshman and sophomore mathematics majors. It is based on merit. The recipients this year were:

Dylan Wood, Elaine, Lee, Marina Fiala, Jeremy Thrasher, Lesley Williams, Lara Zipperer, Cristine Boles, Kathryn Corp, Alessandra Graf, Duncan Mamer, Katrina Werlinger, Jody Wilkerson, Hans Steinbrenner, Catherine Roggio, Shawn West, Rebecca Honsinger, Quinn Laruie, and Christopher Pratt.

Clancy and Barbara Potratz Math Education Scholarship

This scholarship was established by Clancy and Barbara Potratz. Clancy was on the Mathematics Department faculty from 1966 to 1994. He served as head of the department from 1990 to 1994. The scholarship will be available to full time students majoring in the Department of Mathematics. Students with sophomore, junior, or senior standing are eligible. First preference will be given to students preparing for a career teaching mathematics at the middle through high school levels. This scholarship is based on merit.

***Daniel Zeck* is this year's recipient.**

Linn Hower Honor Scholarship

This scholarship was established in 1991 by Mildred and Loyal L. Hower, parents of Linn Hower, who graduated from the University of Idaho in 1979 with a B.S. in Mathematics. This scholarship is awarded to junior and senior applied mathematics majors, preferably from rural Idaho, with a high potential for success in a mathematics or scientific field. It is based on merit.

***Zach Tolmie* is this year's recipient.**

Arnold Misterek Family Scholarship

The Misterek Scholarship was established by Arnold R. and V. Kay Misterek in 2007. Mr. Misterek earned a master's degree from the University of Idaho in 1965. He was a high school math teacher for 25 years. Two of the Mistereks' children graduated from the University of Idaho with math degrees. Mr. Misterek passed away in 2009. The Misterek Scholarship is awarded to graduate students majoring in mathematics, with preference to United States citizens. Selection is based on merit.

***Doug Torrance and Matthew Peterson* are this year's recipients.**

Faculty News

Zaid Abdo is continuing with his studies of the dynamics of the microbial community composition of the human body (the microbiome). This project is funded by multiple grants provided by the national institutes of health (NIH) and aim to further our understanding changes in the microbiome that might have an impact on human health. The microbiome is defined to be the collection of microbes associated with the human body. Recent studies show that the number of cells of these microbes that inhabit our body is ten times as many as our own and that deviations in these microbial communities can be related to diseases such as obesity and possibly cancer in some areas of the body.

Moreover, Dr. Abdo is continuing his efforts in the study of plasmid evolution, also funded by the national institutes of health, and that aims to identify mechanisms of gene transfer between bacteria that might result in the accumulation of antibiotic resistance in these bacteria, a major problem for human health. Plasmids are pieces of DNA that commonly contain antibiotic resistance genes and can transfer between different bacteria resulting in sharing such resistance across different species. Dr. Abdo is developing mathematical models and statistical methods to help understand the main factors affecting such gene transfer.

Zaid Abdo and Hirotachi Abo have been promoted to Associate Professors of Mathematics with Tenure.
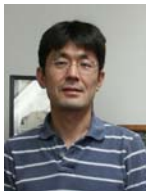
Hirotachi Abo continued to work on a NSF-funded project. He gave a presentation about the recent progress of this project at the workshop ``Coding Theory and Geometry" at Colorado State University, Fort Collins, CO. He also delivered two invited lectures at the Algebraic Geometry Symposium, which was held at Waseda University, Tokyo, Japan.

Lyudmyla Barannyk was awarded a seed grant from the Battelle Energy Alliance to fund the development of fast and efficient algorithms for large data sets. She gave presentations at the 63rd Annual Meeting of the American Physical Society, Division of Fluid Dynamics in Long Beach, California

and at the 8th Annual Conference on Frontiers in Applied and Computational Mathematics organized by her alma mater, New Jersey Institute of Technology. She also delivered talks at the 23rd Pacific Northwest Numerical Analysis Seminar that took place at Washington State University and at the University of Idaho Department of Mathematics Colloquium. She visited Boise State University, University of Idaho, Idaho Falls campus, Center for Advanced Energy Studies and gave talks to the university faculty and scientists from the Idaho National Lab.

Somantika Datta received a three-year grant from the Air Force Office of Scientific Research (AFOSR) to work on problems in waveform design. She was awarded a 2010-2011 Project NExT (New Experiences in Teaching) Fellowship. Project NExT is a professional development program of the Mathematical Association of America (MAA) for new and recent Ph.D.s. She attended the Joint Mathematics Meetings of the American Mathematical Society (AMS) in New Orleans in January 2011 and gave a talk entitled "Construction of Zero Autocorrelation Stochastic Waveforms". In March, she gave an invited talk entitled "Deterministic Compressed Sensing for Efficient Image Reconstruction" in the special session on Sparse Data Representations and Applications at the Southeastern Sectional Meeting of the AMS in Georgia Southern University.

Rob Ely published research articles, about student reasoning, about infinite processes, and about productive use of student work in teaching. At conferences he gave several presentations and led a working group on limits and infinity in undergraduate mathematics education. He has been developing courses for the Idaho Math Endorsement Program, a new statewide program focused on preparing teachers, supported by the Idaho State Department of Education.

Frank Gao visited the University of Minnesota in March, and gave a talk "Persistence of partial sums of random walks" in the School of Statistics.

Jennifer Johnson-Leung attended Sage Days 26 in Seattle in December, where she led a project focusing on computing values of L-functions of genus two curves. In January, she was pleased to attend the first Abel Conference at the Institute for Mathematics and its Applications in Minneapolis in honor of John Tate. She also spoke at the Pacific Northwest Number Theory Conference which was held in Bellingham in early May, and she is looking forward to organizing the conference next year at the University of Idaho. Finally, she was awarded a Young Investigator's grant from the National Security Agency to pursue her research on special values of L-functions of abelian surfaces.

Paul Joyce received an NIH-R01 Grant for 1.2 million dollars with co-PI's Holly Wichman and Craig Miller. He gave invited talks at the Institute of Mathematical Statistics Annual Meeting, the Workshop in Population Genetics (University of Copenhagen), Wellcome Trust Center for Human Genetics (a research institute of the University of Oxford), and the Department of Applied Mathematics and Physics, the University of Cambridge. He also gave contributing talks at the Center for Biomedical Research Excellence Conference, Washington D.C., and Evolution Meetings, Portland, Oregon.

Steve Krone is one of the project directors in the NIH COBRE grant to work on Spatial Structure and Adaptive Evolution of Viruses. He is also a co-PI on the new NSF UBM grant (joint with WSU) that supports undergraduate research in mathematical biology. He gave an invited talk at NIH IDeA Conference, Reno, NV. He served on joint NSF/NIH grant review panel and is an Associate Editor for both Annals of Applied Probability and Journal of Mathematical Biology.

Linh Nguyen spent the fall semester of 2010 at the Mathematical Sciences Research Institute (MSRI), Berkeley. He gave two talks there, one

in the Postdoc and Graduate Student seminar and one in the "Inverse Problems: Theory and Applications" workshop. He also gave an invited talk at the minisymposium "Hybrid Methods in Biomedical Imaging" at the "Applied Inverse Problems Conference" in College Station, TX.

Mark Nielsen continues to serve as Associate Dean in the College of Science.

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Kirk Trigsted has been a redesign scholar for the National Center for Academic Transformation (NCAT) for the last several years. During the academic year 2010/2011, he has been working closely with 6 schools that were given a grant through the NCAT funded by the gates foundation. Each of these schools is creating a math lab that emulates our Polya Mathematics Center. In Spring 2011, he finished writing two books *Algebra & Trigonometry* and *Trigonometry*, which will officially be published by Pearson in 2012. These two books are part of the Trigsted MyMathLab eCourse series. For more details about this eCourse series, please visit the website at the following URL: http://pearsonhighered.com/trigstedinfo/index.html

Hunter Snevily Retires

Contributed by Arie Bialostocki and Lior Pachter

Professor Hunter Snevily took early retirement this year because of his ongoing battle with Parkinson disease. Hunter graduated from Emory University in 1981 and received his PhD under the supervision of Prof. Douglas West from the University of Illinois in Urbana, in 1991. After being a postdoctoral fellow at Caltech Hosted by Prof. Richard Wilson, Hunter took a faculty position at the University of Idaho in 1993 and was a faculty member till last year. He has continued to conduct research in his retirement. His primary research area is extremal combinatorics, where he applies tools from algebra to combinatorial problems. He will be remembered by many of his students at the University of Idaho as well as by some Caltech students whom he mentored while being a postdoc. there, among them is Lior Pachter, currently a professor at Berkeley who offered the following tribute to Hunter:

"One of the great mysteries of mathematics is the art of conjecture: the ability to glimpse truth by intuition rather than reason. Few mathematicians are endowed with the talent, and they are the envy of the mathematical world (not to mention very sought after collaborators!) When I first took a course from Hunter when I was an undergraduate at Caltech in the early 1990s, I had just completed the standard coursework in algebra, analysis and topology, and although I had learned many theorems, I knew that I didn't know how the theorems were discovered in the first place. I still had not had real contact with mathematics- I had not experienced the thrill of conjecture. Hunter's course changed all of that. He is a master of conjecture, and his skill and passion for mathematics spilled over to the class. He taught us graph theory and matroid theory by empowering us to discover ourselves. Classical theorems and cutting edge conjectures shared an equal footing in the class, and we learned how research happens, and how to think.

Hunter generated such excitement in me, that I asked him to work on one of his many conjectures, and eventually this led to a joint research paper, my first, on graph pebbling. Hunter's conjectures in that paper alone have resulted in more than 60 papers written by others. In fact, his talent at conjecturing, specifically his ability to grasp hidden structure among the most basic of all mathematical objects, finite sets, has resulted in numerous conjectures that have been the sustenance of countless mathematicians. A recent paper just came out solving "Snevily's conjecture", and of course the first question that came to my mind was "which one?!". Perhaps my favorite, over the years, is the remarkable conjecture about latin transversals in the addition tables of Abelian groups. This conjecture was recently solved by Bodan Arsovski using beautiful ideas from representation theory and linear algebra and published in the Israel Journal of Mathematics.

During my undergraduate years, Hunter was much more than a teacher and collaborator to me. He took me to my first math conference, shared his research thoughts and anxieties, and we would talk a lot about life. Perhaps the fact that he was a postdoc at the time, and I an undergraduate, meant that our distance in the graph of life was short, and therefore it was possible for us to become friends. I'm very fortunate to have my career launched by such a friend. As you start your retirement, it is a fitting time to say thank you. I wish you the best and look forward to more of your conjectures being solved! "

His students at UI will remember him for his minimalist lectures in which he was able to communicate the kernel of the subject with the ultimate efficiency. He also provided wonderful research opportunities for undergraduates.

Over the years, Hunter had several influential publications, but the highlight of his career is the 1999 conjecture referred to in Professor Pachter's comments which has been recently confirmed by Arsovski, a young mathematician from Macedonia. Hunter's conjecture has caught the attention of several world class mathematicians, among them Noga Alon and Fields' medalist Torrance Tao who devoted a section to it in his well known book "additive combinatorics".

Departmental Colloquium

The math department offers regular colloquia every academic year, where the speaker presents specific topics related to his/her research interests in mathematics aimed at a variety of audience. Organizing colloquium is one of the most important departmental activities, because each colloquium talk provides a bird's eye view of new developments in the speaker's research field and makes an opportunity to keep us up-to-date with recent progress and future directions in mathematics.

This year's departmental colloquium series, which turned out to be very successful, was organized by Zaid Abdo, Lyudmyla Barannyk, Arie Bialostocki (Chair), and Frank Gao.

There were altogether sixteen colloquium talks during 2010-2011. Eight of them were given by outside speakers, which include Rebecca Tyson (University of British Colombia-Okanagan), Hong-Ming Yin (WSU), Luke Oeding (University of Florence), Alex Panchenko (WSU), Zach Teitler (Boise State University), Eric Schultz (Walla Walla Community College), and Donna Calhoun (Boise State University).

Sean Haler, a former graduate student of the University of Idaho who is currently working for the Department of Defense, was also one of the eight colloquium speakers. Sean talked about Enigma, a series of cipher machines developed in Germany before the WWII, and how its security was broken. He also brought an actual Enigma machine to demonstrate how Enigma encryption and decryption techniques work.

If you have a fun math-related story to tell us and are interested in giving a talk, please let us know. We would like to have you as a colloquium speaker!

UI Math Club

The University of Idaho Math Club is a club for anyone who is interested in mathematics. The Math Club holds regular meetings and social events every semester, including math scavenger hunts, games nights, and movies. Around March 14 every year we host a Pi Day Celebration with plenty of pie and the famous Integration Bee.

This year, the Math Club is supervised by Professors Ely, Nielsen, Nguyen, and Woo.

IN THE NEWS
Past Math Graduate Earns PhD in Physics
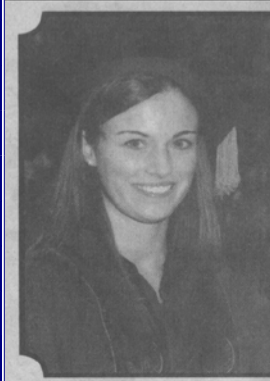
Brianna (Tweedy) Mount, PH. D. Graduated from Florida State University, December 10, 2010, with a Doctorate of Philosophy in Physics. Brianna graduated from Lewiston High School in 2002, and from the University of Idaho in 2006 with a double major in Math and Physics. She is the daughter of Doug Tweedy of Spokane, Wash. and Ann Phillips of Nampa, Ida. Brianna is married to Capt. Daniel Mount of the U.S. Air Force, deployed to the Persian Gulf.

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Prize Problems

Solve one of the two Prize Problems and you win a prize!!! Some problems may appear hard or impossible, but all have a clear solution if you approach them in the right way. Prizes will be awarded while supplies last. Show or send your written solution to the math department: math@uidaho.edu.

Rules for participating:

1. You must be an undergraduate, an alumnus, or an alumna.

2. You must solve one of the problems, giving a full explanation.

3. One prize per person.

Problem 1

Let α, β and γ be the roots of $x^3 + x^2 - 1 = 0$. Find a cubic polynomial that has

$$(\alpha + \beta)(\alpha + \gamma), \ (\beta + \gamma)(\beta + \alpha), \ (\gamma + \alpha)(\gamma + \beta)$$

as roots.

Problem 2

Let a, b and c be the edge lengths of a triangle and let $2s = a + b + c$. Show the following inequalities hold:

(i) $\frac{s}{s-a} + \frac{s}{s-b} + \frac{s}{s-c} \geq 9.$

(ii) $\frac{a}{s-a} + \frac{b}{s-b} + \frac{c}{s-c} \geq 6.$

You can learn more about the UI Math Department and see a full color version of the newsletter by visiting our website:

www.uidaho.edu/math