Math News

A publication of the Mathematics Department at the University of Idaho

2013-2014
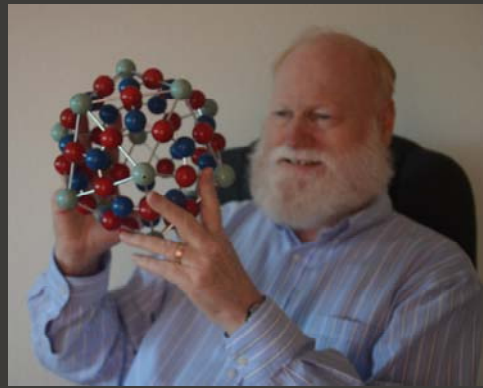
UI Math Club

By Rob Ely

The UI Math Club had an exciting year, with several game nights, a Scary Math Paradoxes party on Halloween, and, of course, the annual Pi Day celebration in March.

The Math Club officers for 2013-2014 were:
President Peter Brown, Vice President Ben Anzis, and Transcendental Geometer Andrew Schwartzmeyer.

For more information about the UI Math Club, contact Rob Ely via email at ely@uidaho.edu.

Letter from the chair

The 2013-14 year has been a very exciting one as a number of our students, staff, and faculty have been recognized for extraordinary accomplishments as chronicled in this newsletter. In addition to a number of departmental student awards, one of our undergraduates, Ben Anziz, was awarded a Hill research fellowship to support the research he is doing under the guidance of Professor Stefan Tohaneanu. Ben has since had a research paper accepted for publication and given a talk at a national meeting. Led by Ben, our Putnam team performed well. Masaki Ikeda, a Ph.D. student, made a presentation at a national meeting. Our students enjoyed many Math Club activities, with Pi Day as the highlight. Cynthia Piez won the university Excellence in Teaching Award, and Jana Joyce won the 2014 Outstanding Staff Award. This year we graduated 33 students with a Bachelor's degree, 8 with an M.A.T. degree, and 6 with an M.S. degree. Some of the exciting funded research in the department is described in this newsletter and is fundamental to the success of all aspects of the departmental mission. We are very excited about what our newest faculty member, Chris Remien, brings to the Mathematical Biology efforts in the department. Sadly, two retired faculty members, Mary Voxman and Hunter Snevily, passed away this year. We continue to receive support from our alumni and friends in the form of funded scholarships. Knowing the worthy students who receive these scholarships and how much the support helps and encourages them, I can attest to the value of contributing to these scholarships. A list of the scholarships appears in this newsletter and I encourage all of our friends to consider supporting them.

Excellence in Teaching

Awarded to graduate students who demonstrate excellence in teaching.

At the Spring 2014 commencement Jeffrey Winter, Jesse Oldroyd, Masaki Ikeda, and Sarah Krug received the Excellence in Teaching Award.

JEFFREY

JESSE

Interview with Chris Remien
Article prepared by Hirotachi Abo

BIRTHPLACE
Ishpeming, Michigan in the beautiful Upper Peninsula of Michigan

FAMILY
Wife: Diana

DEGREES
B.A. with double major in mathematics and Russian from St. Olaf College, a small college in southern Minnesota. M.S. and Ph.D. in mathematics from the University of Utah.

RESEARCH AREA
Mathematical biology. My goal is to use process-based mathematical models to better interpret biological measurements, with much of my research focusing on how animals process nutrients and toxins. The mathematical techniques that I use depend on the specific research question and have included dynamical systems, bifurcation theory, probability, inverse methods, perturbation methods, simulation, and statistics.

FAVORITE LIVING MATHEMATICIAN
James Murray

FAVORITE DEAD MATHEMATICIAN
Alan Turing

FAVORITE THEOREM
Central limit theorem

FAVORITE MOVIE
A River Runs Through It

FAVORITE TV SHOW
The Wire

FAVORITE BOOK
The Master and Margarita by Mikhail Bulgakov

FAVORITE OUTDOOR ACTIVITIES
Skiing and mountain biking

FAVORITE PLACE TO VISIT
Alta, Utah on a powder day

IN MY SPARE TIME I LIKE TO
Travel, camp, fish, or just be outside with my two dogs, blue heeler Newton and fluffy mutt Jasper.
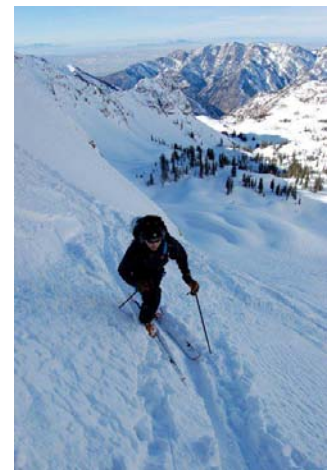
I WISH I KNEW HOW TO
Surf!

I WISH I COULD MEET
Charles Darwin, founder of modern biology.

FUN FACT ABOUT ME
As a graduate student, I spent three summers doing field work in Kenya.

Cynthia Piez wins University Excellence in Teaching Award

Article prepared by Monte Boisen

It will surprise no one who has had Cynthia Piez as a teacher that she won the most prestigious teaching award at the University of Idaho in 2014. This award recognizes several aspects of her teaching including, of course, her in-class teaching, her preparation of materials, organization, and class lectures. It also recognizes her subject-matter expertise and her enthusiasm for teaching, encouragement of students, attention to individual student's needs, and availability. It recognizes Cynthia's continued interest in the professional development of her teaching skills and evidence of her efforts to disseminate teaching skills, techniques, approaches, and innovations through research on pedagogy. Finally, her use of innovative (e.g. web assisted, problem-based) and crea-

tive teaching strategies, tools, and approaches in the classroom is recognized. She excels in all of these categories and we are very fortunate to have her on our faculty.

Congratulations, Cynthia!

Excellence in Teaching, continued

MASAKI

SARAH
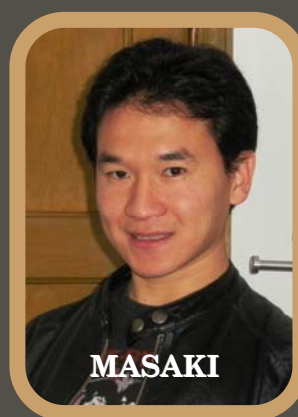
Integration Bee 2014

David Afantchao (left),
Brad Walker (center),
Jieun Lee (right)

The 12th Annual Integration Bee took place during the 2014 Pi Day Celebration in March. An integration bee is like a spelling bee, but you solve integrals instead of spelling words.

The winners of this year's bee were:
1st place: Brad Walker
2nd place: Jieun Lee
3rd place: David Afantchao

The deciding integral was
$$dx/[1+sec(x)]$$

Can you solve it?
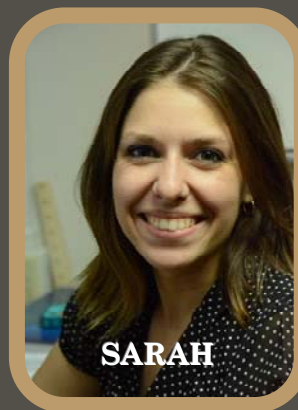
Remembering Mary Voxman

Article prepared by Ralph Neuhaus

Mary Voxman passed away on May 18, 2014. She was born in Cochabamba, Bolivia in 1941. Her father, a US born engineer, and her mother, a prominent Bolivian physician, moved the family to Iowa City so that Mary and her sister could go to high school in the US. Mary attended the University of Iowa and earned both a Bachelor's and Master's degree in Mathematics, completing her studies in 1966, with Algebra being her favorite subject. She came to Moscow, Idaho with her family in 1970 and taught fourth grade at McDonald Elementary School for a few years before coming to the University of Idaho Mathematics Department to teach Intermediate Algebra in 1982. Her students appreciated the care she put into teaching. She received great satisfaction from the students, as is shown with this quote from her, "I love it when a student has not been doing well and there is a turn around and the student begins to understand and then begins to enjoy the work." Students who struggled in mathematics in high school or came to the university with poor mathematics preparation had a friend in Mary. She set tough standards, but would work tirelessly with any student willing to make an effort. She was most proud of being the first director of the Math-Stat Assistance Center and her work in introducing the use of the graphing calculator in the College Algebra course. Mary received the UI Alumni Award for Excellence in 1990. She retired from UI in 2003 as Senior Instructor Emerita in Mathematics.

Mary's spirit of charity produced a life of selfless giving to the community and beyond. As a tireless advocate for human rights and social justice, she was the 2001 recipient of the Martin Luther King Human Rights Award for "Outstanding Commitment to the University of Idaho and greater Moscow Communities." As one of the founders and a driving force of the Moscow Sister City Association, she was largely responsible for raising awareness of Central and South American culture. From selling salteñas (Bolivian meat pies) at the Renaissance Fair to a spaghetti feed in the winter, she was always promoting fundraisers to help the less fortunate. Mary's warm smile and gentle requests for help in these causes were key to the success of these events.

Mary had many hobbies and interests, including dancing, tennis, and playing poker. Mary is survived by her son Alex, her daughter Tanya, her sister Gery, and friends everywhere.

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/sci/math

Remembering Hunter Snevily

Article prepared by Mark Nielsen

Hunter Snevily, Emeritus Associate Professor in the Mathematics Department, passed away at his Moscow home on November 11, 2013. Dr. Snevily earned his Ph.D. in Mathematics from the University of Illinois in 1991. After a post-doctoral appointment at Caltech, he joined the UI Mathematics faculty in 1993. He was a well-respected researcher in his field of combinatorics, with an excellent gift for (and corresponding reputation for) developing challenging conjectures based on patterns he observed.

Hunter was an excellent collaborator and enjoyed working on mathematics questions with other researchers. He also enjoyed introducing students to mathematical ideas, and supervised several undergraduate research projects during his time at UI. Even Hunter's hobbies reflected his love of patterns, discovery, and competition – he loved to play poker as both a pastime and competitively. Hunter remained a mathematician to the end. Even when declining health (due to Parkinson's Disease) forced his retirement in 2011, he continued correspondence with other researchers, and remained active in working on mathematical questions up until his death.

Hunter is survived by his daughter Maddie and son John.

Jana Joyce wins Staff Award

Article prepared by Monte Boisen

Jana Joyce was recognized this year with the university's 2014 Outstanding Staff Award. Jana has provided outstanding service to the Math Department since 1998 and was previously recognized with this award in 2005. Jana serves as the Program Manager of our department and adds value to everything we do. Our success in obtaining external funding is greatly enhanced by her expert guidance throughout the grant process. Recently, every faculty member who has been here more than a couple of years has received a grant. This remarkable success is due in no small part to Jana. Jana also plays a leading role in the advising of students and in the development of the math curriculum. Her leadership in the development of the summer program has greatly benefited the department's bottom line and has helped many students finish their degree programs on time. One of her main areas of responsibility is managing the financial business of the department. Here, as in her other duties, Jana goes beyond keeping track of the budget and balancing the many accounts in the department and actually serves as a steward of the departmental resources. She gives sage advice on how best to maximize the department's success within the meager budget with which we have to work. The department is very fortunate to have such a talented person in the role of Program Manager.

Congratulations, Jana!

Undergraduate Award Winners

Several of our outstanding students received recognition for their achievements during the May 2014 commencement celebrations.

Chair's Award for Excellence
Awarded to graduating seniors in recognition of excellent academic performance.

Yousef Bayomy received a Chair's Award for Excellence. Yousef is from Moscow, Idaho. After graduation he will be staying at UI to work on an M.S. degree in Applied Economics.

Wayne Fuhrman received a Chair's Award for Excellence. Wayne is from Idaho Falls, Idaho. After graduation he will begin a job in the software industry.

Outstanding Seniors
Awarded to seniors who have shown exceptional mathematical talent.

Ryan Sacksteder received an Outstanding Graduating Senior Award. Ryan is from Athol, Idaho. After graduation he will begin a job as a Software Engineer with a company in Coeur d'Alene, Idaho called Chief Architect (3D home design software).

Thomas Jacobs received an Outstanding Graduating Senior Award. Thomas is from Sandpoint, Idaho. After graduation he will begin a job as a high school math teacher.

Johanna Gerger received an Outstanding Graduating Senior Award. Johanna is from Post Falls, Idaho. After graduation she will begin a job with Fast Enterprises.

Undergraduate Research: Ben Anzis

Ben Anzis was awarded a 2014 Brian and Gayle Hill Fellowship. Ben, a math and computer science double major, is working on the project "Using algebraic geometric techniques to error-correct linear codes" with Dr. Stefan Tohaneanu.

When asked about the research, Ben responded "Codes are essential for transmitting information. Correcting errors is therefore an extremely important matter; however, most methods for doing so don't take full advantage of the underlying algebraic structure of codes. My research with Stefan uses algebraic geometry to analyze this structure in order to develop algorithms for error-correction."

Recent Graduates

In May 2014, ten graduate students earned Master's degrees in mathematics. Congratulations to our recent graduates!

Damian Caires, M.A.T.
Shanna Croney, M.A.T.
Marte McPherson, M.A.T.
James Moore, M.A.T.

Veronica Blackham, M.S.
Cory Druffel, M.S.
Esther Klosterman, M.S.
Sarah Krug, M.S.
Timothy Trammel, M.S.
Jeffrey Winter, M.S.

Some of our recent Master's graduates

Putnam Competition

Article prepared by Linh Nguyen

The William Lowell Putnam Mathematical competition began in 1938 and is designed to stimulate a healthy rivalry in mathematical studies at colleges and universities in the United States and Canada. It is administered by the Mathematical Association of America.

The examination is designed to test creativity in problem solving as well as technical competence. It is expected that the contestants are familiar with the formal theories taught in undergraduate mathematics courses. Questions may cut across the bounds of various disciplines. Self-contained questions involving elementary concepts from group theory, set theory, graph theory, lattice theory, number theory, and cardinal arithmetic may also appear.

The competition is organized in two sections (morning and afternoon) on the first Saturday of December. Each section has 6 problems and the total score for both sections is 120. Each problem is graded on a basis of 0 to 10 points, with partial credit given when a contestant has shown progress toward a solution. The questions are so hard that about half of all contestants fail to earn any points.

The 74th Putnam contest was held December 7, 2013 with 4113 contestants from 557 institutions. The University of Idaho had seven participants. Three students were designated as our official team: Peter Brown, Ben Anzis, and Thomas Jacob. All of the team members did an excellent job, earning a positive score. With a total score of 20, our team was ranked 142nd.

We hope to have even better results in future competitions.

Congratulations to our 2013 participants!

Lecturers in Mathematics

The Math Department welcomes three lecturers in Fall 2014:
Ann Abbott
Timothy Trammel
Manuel Welhan

Ann Abbott and Manuel Welhan have previously worked as lecturers in the math department, and Timothy Trammel is shifting from a graduate student role into one as a lecturer.

We are happy to have all three working in our department this semester!

Putnam Team



Ben Anzis (left)
Peter Brown (right)

Scholarships

Several scholarships are available to math majors. Scholarship amounts range from $500 up to $6500.

All mathematics majors are automatically considered for a scholarship.

Non-mathematics majors are eligible for scholarship consideration if they change their major to mathematics or add mathematics as a second major.

Scholarship 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.
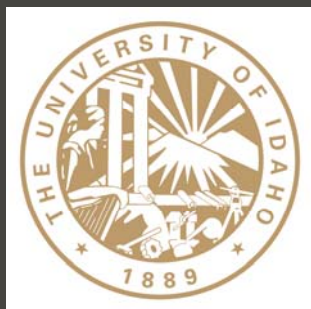
J. Lawrence Botsford Scholarship

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. *Kyle Morgan was the 2013-2014 recipient.*

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 2013-2014 recipients were: Cassandra Clark, Johanna Gerger, Ryan Cook, Justin Stoddard, Natalie Goddard, Thomas Jacobs, Wayne Fuhrman, Yousef Bayomy, Michelle White, Jieun Lee, and Mariah Eckwright.*

Mathematics Graduate Student Scholarship

This scholarship is supported by annual contributions of friends of the department and is awarded to mathematics graduate students at the discretion of the Math Department. *The 2013-2014 recipients were: Jeffrey Winter, Sarah Krug, Masaki Ikeda, Brittani Bailey, Aditya Baskota, Jaclyn Simmons, Michael Love, and Esther Klosterman.*

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. *Courtney Creech was the 2013-2014 recipient.*

Math Deptartment 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 2013-2014 recipient was Ben Anzis.*

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 is available to full time sophomore, junior, or senior students majoring in mathematics. Preference is given to students preparing for a career teaching mathematics at the middle through high school levels. This scholarship is based on merit.
Michelle McCullough and Jessica Smart were the 2013-2014 recipients.

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. *Paul Bailey was the 2013-2014 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. *Jesse Oldroyd was the 2013-2014 recipients.*

Elna Grahn Math Scholarship

Established in honor of Elna Grahn and awarded to full-time students pursuing a degree in mathematics at the University of Idaho. *The 2013-2014 recipients were: Monica Agana, Lance Churchill, and Claudia Mahler.*

New Scholarships

J. Karen Pyrah and Pyrah Family Scholarship

The J. Karen Pyrah and Pyrah Family Scholarship was established in 2012 in memory of J. Karen Pyrah, her parents, Walter Glen Pyrah and Georgia Anderson Pyrah, and her brother, David Anderson Pyrah. Karen grew up in Ketchum and graduated from the University of Idaho with a B.S. in math in 1967. She was a member of Kappa Kappa Gamma. She spent her career with the CIA, and retired as a member of the Senior Intelligence Service. Karen passed away in 2010. The scholarship was established to provide students with the opportunity for a successful career such as Karen had. The scholarship is for undergraduate mathematics majors, with preference to students from Idaho.

The 2013-2014 recipient of the Pyrah Scholarship was Kairav Joshi.

Malcolm and Carol Renfrew Endowed Scholarship in Mathematics

The Malcolm and Carol Renfrew Endowed Scholarship in Mathematics was established in 2014 through a bequest from Malcolm and Carol Renfrew. Malcolm earned B.S. and M.S. degrees in chemistry in 1932 and 1934, respectively. Carol earned a B.A. in economics in 1935. After a successful career in industry, Malcolm returned to the University of Idaho as head of the Department of Physical Sciences and later the Department of Chemistry. During his time on the faculty, Malcolm helped to raise the research profile of the university and played a leading role in establishing a Ph.D. program. Following retirement, the Renfrews remained incredibly supportive of the University of Idaho and the Moscow community. The scholarship is open to all students in the math department.

The first Malcolm and Carol Renfrew Endowed Scholarship in Mathematics will be awarded in 2015-2016.

William J. Perry Mathematics Scholarship Endowment

The William J. Perry Mathematics Scholarship was established in honor of William Perry and his connection to the University of Idaho. Dr. Perry was the nineteenth secretary of defense for the United States, serving from February 1994 to January 1997. He previously served as deputy secretary of defense (1993–94) and as undersecretary of defense for research and engineering (1977–81). He taught in the University of Idaho Department of Mathematics during the 1950-1951 academic year. Dr. Perry's numerous honors and awards include the Presidential Medal of Freedom (1997) and the Department of Defense Distinguished Service Medal (1980 and 1981). He is a member of the American Academy of Arts and Sciences and the National Academy of Engineering. The scholarship is for graduate students in the department.

The first William J. Perry Endowed Scholarship in Mathematics will be awarded in 2015-2016.

New Graduate Students

In the Fall of 2014 the Math Department welcomes four new graduate students:

Mahalingam Dhamodharan (M.S. student)

Shannon Foss (M.S. student)

John Pawlina (M.S. student)

Daniel Reiss (Ph.D. student)

Faculty News

Where Are They Now?

Updates on some of our recent graduates:

Katrina Werlinger is a high school teacher in Washington.

Natalie Heller is a graduate student in Statistics at UI.

Bailey Hescock is a graduate student in Statistics at UI.

Claudia Mahler is a graduate student in Statistics at the University of Calgary.

Chris Pratt is a graduate student in Robotics at the University of Utah.

Jeffrey Winter is an instructor at Black Hills State University.

Rob Ely hosted a summer institute for mathematics teachers and school administrators through the Making Mathematical Reasoning Explicit (MMRE) project. The project is a 5-year, $5 million partnership between UI and WSU. Two of the project's PIs are Rob Ely and Jennifer Johnson-Leung. This summer 70 teachers came to UI for 2 1/2 weeks of intense work that focused on algebraic reasoning, generalization, and justification. An additional 52 teachers from the region also came for a week for an introduction to MMRE and mathematical reasoning. Teachers in the project have reported great success in their students' test scores and attitudes toward math.

Somantika Datta was awarded an NSF grant. In harmonic analysis, frames provide decompositions of functions where the individual components (of the frame) are not necessarily linearly independent. In recent years, they have become the standard tool for generating useful redundant (or over complete) signal representations. Frames make signal representations more flexible, robust to transmission errors, and resilient to noise. Despite the prevalence of stochastic models for noise and other uncertainties that plague many signal processing problems, deterministic perspectives and methods remain dominant in frame theory research. The pervasive theme of the research funded by this grant is to study how well (stochastic) signals can be represented by random subframes of standard ones. The ultimate goal is to design/study frames and random subframes that are resilient to transmission losses or erasures of frame coefficients. This will entail developing notions of optimality under erasure and characterizations of optimal frames. The application of this theoretical work to signal processing problems will promote the transition of basic mathematical results into applications and perhaps ultimately into new technologies.

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

Linh Nguyen was awarded an NSF grant "Mathematics of Thermoacoustic and Photoacoustic Tomography." Biomedical imaging's goal is to take image of non-transparent biological objects. Its most well-known method is the x-ray tomography, where the x-ray is irradiated to probe the object. Nowadays, there are many biomedical-imaging modalities; however, they all suffer from either low contrast or bad resolution. An innovative idea to overcome this limitation is to combine several physical phenomena in a single imaging modality. Such an imaging modality is called multi-physics. Thermoacoustic tomography and photo-acoustic tomography are multi-physics methods of biomedical imaging. This research addresses the mathematical issues associated with these types of imaging. The studied problems can be divided into two areas: Geometric Integral Transform (or Integral Geometry) and Partial Differential Equations (PDEs). The first area studies the Radon transform and its variations. It is a beautiful combination of geometry and analysis. The use of integral geometry in biomedical imaging has the advantage that it often gives a very elegant and explicit answer. Meanwhile, one uses the second area (PDEs) to study the acoustic and electromagnetic wave phenomena arising in thermo/photo-acoustic tomography. Although the use of PDEs often results in less explicit answers, it captures the reality more precisely.

Frank Gao attended the "International Workshop on Multiscale Problems from Physics, Biology and Materials Science" in Shanghai, and attended the SQuaRE Workshop on Persistence Probability at the American Institute of Mathematics, in Palo Alto.

Stefan Tohaneanu gave an invited talk at the AMS Meeting in Baltimore, had 5 articles published, and is working on an article with Ben Anzis, a student at the University of Idaho.

Faculty News

Jennifer Johnson-Leung gave a course and research talk at the graduate summer school on Special Values of L-functions held at the Ecole Normal Superior in Lyon, France. This summer she continued her work with Rob Ely and Anne Adams on the NSF project "Making Mathematical Reasoning Explicit." This was the third year of the Summer Institute at which Jennifer taught Algebraic Reasoning to teachers from Eastern Washington and Northern Idaho.

David Yopp continued as the principal investigator for the NSF-funded project Learning Algebra and Methods of Proof (LAMP) and as a co-principal investigator for the NSF-funded project Examining Mathematics Coaching (EMC). The LAMP project explores the plausibility and effectiveness of a sequence of twenty-four 8th-grade lessons for improving students' abilities to write viable arguments and critique the arguments of others in the context of algebra. Dr. Yopp's other project, EMC, explores the extent to which mathematics coaches' knowledge of math and knowledge of coaching practices influence the knowledge and practice of the teachers they coach. Loosely defined, a mathematics coach is a person who works with teachers to improve their practice. The study represents one of very few studies that have been successful in establishing links between coaching characteristics and actual teacher change.

Steve Krone continued participating in the NSF UBM (undergraduate biology and math) grant. This summer he began working with two UBM students on spatial models of populations of phage and bacteria. The goal of these modeling studies is to introduce and explore the feasibility of several potential laboratory approaches for evolving lysins that kill pathogenic bacteria.

Alexander Woo continued work on an NSA Young Investigators Grant on "Combinatorics and Geometry on Generalized Flag Manifolds." He traveled to Johnson City, TN for the 12th International Permutation Patterns Conference, where both he and graduate student Masaki Ikeda gave talks on their research.

Lyudmyla Barannyk is a Co-PI on the National Science Foundation (NSF) Major Research Instrumentation (MRI) grant "Acquisition of an Adaptive Computation Server for Support of STEM Research at the University of Idaho." The computer acquired for this grant is only about the size of a microwave, but it has four terabytes of memory and 160 different processors. The supercomputer is essentially a computation server that can be accessed by researchers at all of UI's locations in the state and can be used in a variety of fields. The computer is up and running and people are doing experiments with it. In particular, Lyudmyla has been using it to test the performance of complexity reduction algorithms for large data sets (joint work with Alexander Panchenko from WSU) as well as artifacts reduction in reconstruction of limited spherical mean transform data (joint work with Linh Nguyen). This year Lyudmyla also co-organized a mini-symposium "Mesoscale and nonlocal models of materials with microstructure" at the 2014 SIAM Annual Meeting in Chicago, Illinois; attended the 2014 IEEE Workshop on Microelectronics and Electron Devices; and gave a presentation at Micron Technology, Inc.

Hirotachi Abo (together with Giorgio Ottaviani, Luke Oeding, and Chris Peterson) co-organized a mini-symposium at the SIAM Conference on Applied Algebraic Geometry in Fort Collins, Colorado. He gave a series of lectures and organized problem sessions at the 4th International School of Computational Commutative Algebra and Algebraic Geometry that was held in Messina, Italy.

Western Algebraic Geometry Symposium

The Math Department will host the Western Algebraic Geometry Symposium October 11-12, 2014. The organizers for this symposium are UI Professors Hirotachi Abo, Stefan Tohaneanu, and Alexander Woo, and Boise State Professor Zach Teitler.
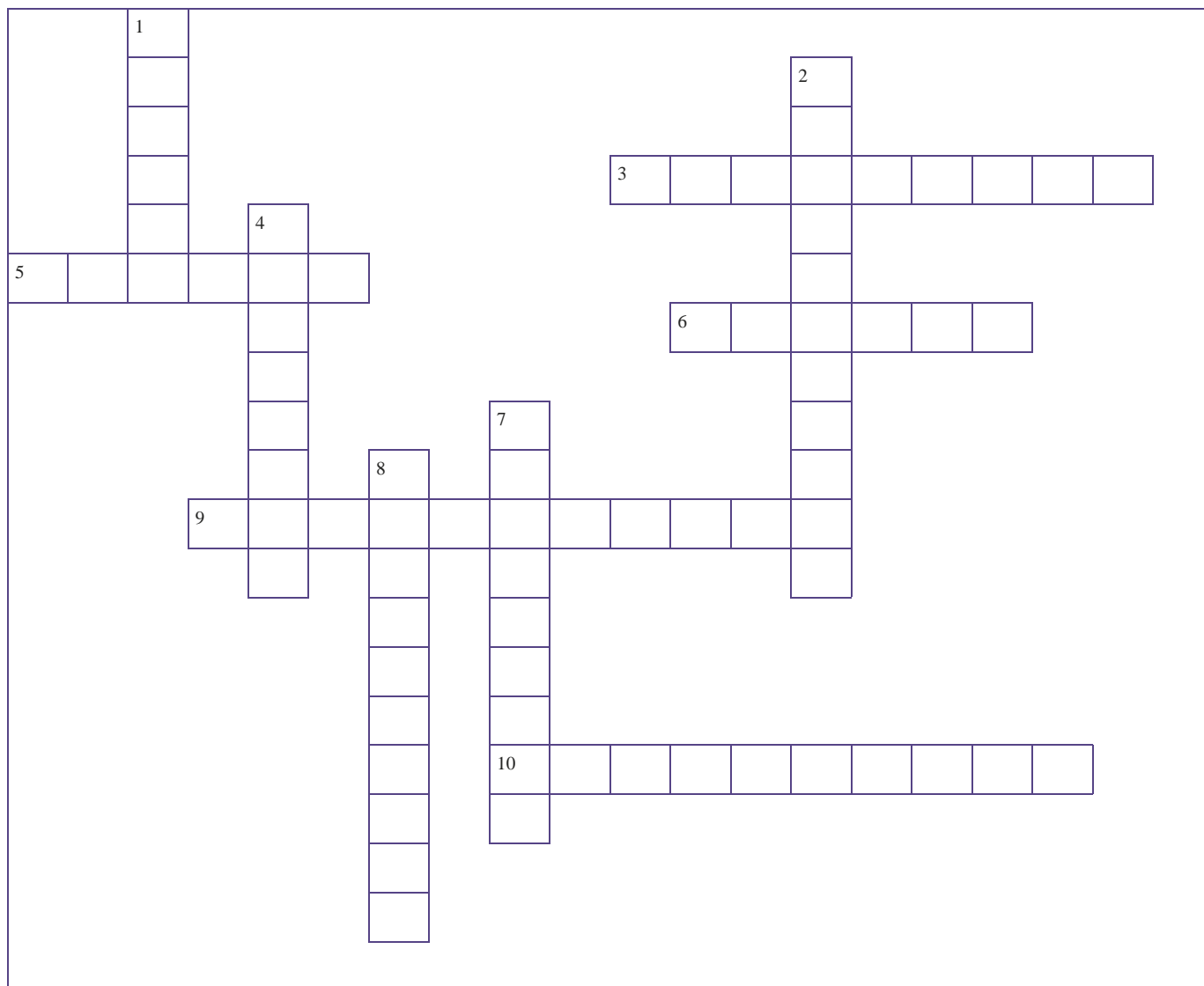
To find out more, please visit the symposium website:

http://fall14.wagsymposium.org/

You may also email questions about the symposium directly to the symposium organizers at:

fall14@wagsymposium.org

Math News Crossword Puzzle

ACROSS

3. We welcome three _____ to the Math Department this semester: Ann Abbott, Timothy Trammel, and Manuel Welhan.

5. Chris _____ is a new faculty member that joined the Math Department in August.

6. Somantika Datta's NSF grant research is focused on _____ and sub-frames that are resilient to transmission losses or erasures of frame coefficients.

9. The 12th Annual _____ Bee was part of our Pi Day celebration held in March.

10. Cynthia Piez was awarded the University _____ in Teaching Award.

DOWN

1. The UI _____ Team ranked 142nd in the 74th Competition held in December.

2. Jana Joyce received a 2014 _____ Staff Award from the university.

4. The Excellence in _____ Award was given to Jeffrey Winter, Jesse Oldroyd, Masaki Ikeda, and Sarah Krug at the Math Department's commencement celebration in May.

7. The Math Club celebrated Halloween with a Scary Math _____ party, just one of the many fun activities hosted by the club throughout the year!

8. Undergraduate Ben Anzis was awarded a 2014 Brian and Gayle Hill _____.

Prize Problems

Solve one of the two Prize Problems and you win a prize! Both problems 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:
- *You must be an undergraduate, an alumnus, or an alumna.*
- *You must solve one of the problems, giving a full explanation.*
- *One prize per person.*

1. You have to deliver a message to a friend and then return home. Your friend lives 4 hours away by horseback. But your horse is persnickety: for every 15 minutes she walks, you have to give her an apple or she won't walk a foot further. You can only carry 20 apples at most, which won't get you all the way there and back in one trip. Is there a strategy you can use to still deliver the message? What is the fewest number of apples you need to use from the apple tree at your house? Can you do it with fewer than 45 apples?

2. A soccer player with the ball is running down the sideline toward the opposing goal. Where is the best point on the sideline for him to try to shoot a goal? In other words, at what point on the sideline does he see the goalposts at the widest angle? Assume a soccer field is 100 meters long, 70 meters wide, and the goalposts are 7 meters apart.