



March 2014



**Matters Mathematical**  
The Newsletter of the Pacific Northwest Section of the Mathematical Association of America

## University of Montana Meeting June 26-28, 2014

### June 2014 PNW MAA Meeting at University of Montana

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The 2014 PNW MAA meeting will be held at the University of Montana in Missoula, Montana, June 26-28. The meeting website is at <http://cas.umt.edu/math/pnwmaa/default.php> and contains information about registration, housing, how to submit papers, etc. This year's invited speakers are Robert L. Devaney of Boston University, speaking on *Chaos Games and Fractal Images* Thursday evening and *The Fractal Geometry of the Mandelbrot Set* on Friday; Ravi Vakil of Stanford, whose talk is yet to be announced; and Skip Garibaldi of IPAM at UCLA, who will give the Saturday evening banquet talk: *Math and the lottery: answers to good questions from students and reporters*. Abstracts and biographies are available at the meeting website.



There are also two minicourses available: EXPLORING, CONJECTURING, AND PROVING: USING PYTHON IN TRANSITION AND ANALYSIS COURSES, presented by Jennifer Halfpap of University of Montana, and COMBINATORIALLY THINKING: CONNECTING DIGRAPHS AND DETERMINANTS, presented by Jennifer Quinn of University of Washington Tacoma.

Registration is open now. The pre-registration deadline is May 24; the deadline to submit an abstract for a talk is May 8. In addition, there is an opportunity to participate in a rafting trip at the end of the meeting. This requires a separate registration and payment; see the meeting website for details.

<http://cas.umt.edu/math/pnwmaa/default.php>

The business meeting will include the following votes:

- Updated bylaws (coming to the section membership soon)
- For the Chair-elect position
- For the Secretary/Treasurer position

We're looking forward to seeing you in Missoula!

# 2014 Distinguished Teaching Award Recipient:

## Tevian Dray

This year's Distinguished Teaching Award for the PNW Section of the MAA goes Dr. Tevian Dray of Oregon State University.



Tevian Dray

Professor Dray's early work involved classical general relativity. More recently, together with collaborator (and spouse) Corinne Manogue, he has been studying the *octonions* with a view to describing the physics of fundamental particles. Other notable collaborations have included work with Professor Gerard 't Hooft, recipient of the 1999 Nobel Prize in Physics, and Professor Paul Davies, recipient of the 1995 Templeton Prize and prolific author of popular science books. Through the years he has tried a variety of innovations in classroom instruction and he has been a true pioneer in curriculum development in both physics (NSF funded Paradigms Project) and calculus (NSF funded Bridging the Vector Calculus Gap). He received the 2011 Loyd Carter Award for Outstanding and Inspirational Undergraduate Teaching, the 2004 Frederick Horne Award for Sustained Excellence in Teaching Science, both from the College of Science at OSU, and also received two teaching awards from the University Honors College.

Dr. Dray will now be considered for the MAA's Haimo Award.

## NUMS Conference April 12

### Call for Undergraduate Presentations

Announcing the 6th annual Northwest Undergraduate Mathematics Symposium at Oregon State University in Corvallis to be held on Saturday, April 12, 2014.

The OSU Math Club and the Pi Mu Epsilon Oregon Beta Chapter invite all mathematics students in the Pacific Northwest to present their work at NUMS this spring. First-year graduate students are welcome to present research completed while still undergraduates. Talks may be short (10 mins) or long (25 mins). \$200 in prizes will be awarded.

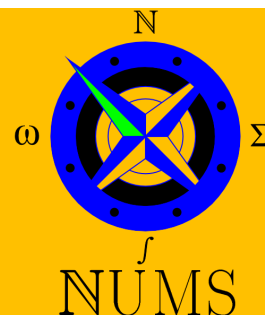
This year we are pleased to announce that Professor Patrick De Leenheer will give the keynote address related to Mathematical Biology. A free lunch will also be provided. There is no registration fee.

Registration for participants and speakers began March 1 and continues until April 4.

For more information and to register online, please visit

<http://nums.math.oregonstate.edu>

Questions or comments may be sent to [nums@math.oregonstate.edu](mailto:nums@math.oregonstate.edu).



# Governor's Greetings

By Jenny McNulty, University of Montana

Greetings! With this newsletter we are reviving the tradition of annual updates from the Governor.

I'd like to begin with a short overview of the position. The Governor is elected to represent the section at the national level. The Governor attends board meetings twice a year and serves on a variety of MAA committees. I am currently a member of the Audit Committee and the Committee on Early Career Mathematicians; and I recently served on the search committee for new Project NExT leaders. In addition to routine board business, there are always important new issues that we discuss. Since I have been Governor these have included streamlining membership to implementing double-blind reviewing for MAA journals to canceling the MAA short courses (not mini-courses) to declining membership to restructuring the Board of Governors. While I won't go into details of all of these items, I would like to mention the MAA's effort to eliminate Implicit Bias. The link below is to the MAA policy on avoiding implicit bias; while these guidelines were developed in the context of prizes and awards, they apply to committee selection, speaker selections as well as nominations of officers and almost every other aspect of our work. [http://www.maa.org/sites/default/files/pdf/sections\\_archived/Sections\\_ImplicitBiasStatement.pdf](http://www.maa.org/sites/default/files/pdf/sections_archived/Sections_ImplicitBiasStatement.pdf)

I want to take this opportunity to personally invite you to the Spring PNW MAA meeting to be held on June 26-28. The meeting will take place at my home institution, the University of Montana. We are very excited to host this meeting, see page 1 for more details. Whether you can attend or not, look for a 35% off coupon in your e-mail valid at the MAA bookstore for up to 2 weeks after the section meeting. Later this summer, Mathfest returns to the Pacific Northwest - Portland, Aug 6-9. If you like to plan ahead, the Joint Math Meetings will also return to the Pacific Northwest – to Seattle in January 2016. One last meeting to mention, the Centennial Celebration of the MAA will take place at Mathfest in Washington DC in the summer of 2015.

The MAA is involved in a variety of other activities besides hosting meetings. For example, the Association sponsors Project NExT, hosts Prep Workshops, holds 19 grants (including the new PreBIG award for "Preparing Students in Business, Industry and Government"), publishes journals and books, provides professional resources (look for the upcoming CUPM Curriculum Guide), and sponsors the Putnam Exam and the American Mathematics Competition (check out *Curriculum Inspiration* relating the AMC to common core standards). With all these activities, the Association relies on volunteers to serve on a variety of committees. You can volunteer for a committee, or nominate someone else, by contacting me at the address below. Please indicate what committee you would be interested in serving; for a list of committees see: <http://www.maa.org/about-maa/governance/council-and-committees-list>.

For additional information on the items mentioned above, please visit the MAA's recently updated web page: <http://www.maa.org/>. Also, please feel free to send me an e-mail: [jenny.mculty@umontana.edu](mailto:jenny.mculty@umontana.edu).

# KRYPTOS<sup>4</sup>: A Series of Cryptanalysis Challenges

April 10-14

KRYPTOS<sup>4</sup> is a contest open to undergraduate students. The theme of the contest is centered around the breaking, or cryptanalysis, of ciphers (secret writing). Each challenge presents contestants with a brief scenario together with some ciphertext (encoded message). The goal is to discover the original English plaintext message!

Clues to help break the cipher may be contained in the actual ciphertext or in the details of the accompanying scenario.

While it is not the intent of this contest to test overly technical aspects of cryptanalysis or advanced mathematical algorithms, some familiarity with basic codemaking and codebreaking is certainly helpful. Some useful sources include:

Challenges from [last year's contest](#).

The [American Cryptogram Association](#).

Wikipedia entries for [Cryptography](#) and [Cryptanalysis](#)

- *The Code Book* by Simon Singh.
- *Secret History: The Story of Cryptology* by Craig Bauer
- *Codes and Ciphers* by R.F. Churchhouse
- *Codes, Ciphers and Secret Writing* by Martin Gardner

We had over 100 students from around the Pacific Northwest participate last year and many have been clamoring for more! Please announce this contest to your students.

Visit: <http://www.cwu.edu/math/kryptos/> for more information -- including instructions on registering students for the contest and a one-page flyer that you can post around your department or campus.

Thank you,

Stuart Boersma , Central Washington University  
Cheryl Beaver, Western Oregon University

KRYPTOS is sponsored by the Pacific Northwest Section of the Mathematical Association of America together with Central Washington University and Western Oregon University.

## Interested in Project NExT?

Project NExT (New Experiences in Teaching) is a professional development program for new or recent graduates in the mathematical sciences (including pure and applied mathematics, statistics, operations research, and mathematics education). It addresses all aspects of an academic career: improving the teaching and learning of mathematics, engaging in research and scholarship, and participating in professional activities. It also provides the participants with a network of peers and mentors as they assume their new responsibilities.

### *1. What are the requirements for the national program?*

Applicants for the national program must have a Ph.D. in the mathematical sciences and be in the first two years of a full-time college/university teaching position. For more information, visit <http://archives.math.utk.edu/projnext>

### *2. What are the requirements for the PNW Project NExT section?*

Applicants for the PNW section must have a Ph.D. or a master's degree in the mathematical sciences and be within the first four years of full-time teaching at a college, university, or community college in the PNW. For more information, visit <http://www.math.umt.edu/pnwnext/> or contact Jenny McNulty at [McNulty@mso.umt.edu](mailto:McNulty@mso.umt.edu).

### *3. How often do we meet?*

Participants in the national program meet at two consecutive MathFests and at the intervening Joint Meetings of the AMS and MAA. Participants in the section NExT meet at two consecutive PNW MAA meetings.

### *4. When can I apply?*

This year's deadline for the national program is Friday, April 11, and the section deadline is Tuesday, April 1. For more information, please visit the websites listed above.

## Upcoming Events and Conferences

### Upcoming Meetings and Events:

2014 KRYPTOS (see p. 4)  
2014 NUMS (see p. 2)  
2014 PNWMAA in Missoula, Montana  
2015 PNWMAA in Tacoma, Washington  
<http://sections.maa.org/pnw/events/>(section)  
[http://www.maa.org/subpage\\_4.html](http://www.maa.org/subpage_4.html) (national)

### Missoula meeting website:

<http://cas.umt.edu/math/pnwmaa/default.php>

## Events at Missoula PNW MAA meeting at University of Montana

### Thursday, June 26

- Minicourses 3:00-5:30
- Robert Devaney: Chaos Games and Fractal Images

### Friday, April 20

- Invited and contributed talks
- Robert Devaney: The Fractal Geometry of the Mandelbrot Set

### Saturday, April 21

- Invited and contributed talks
- Banquet
- Skip Garibaldi: Math and the Lottery: Answers to Good Questions from Students and Reporters

See the Meeting website for more details: <http://cas.umt.edu/math/pnwmaa/default.php>

## Editor's Greetings

There are a some great undergraduate activities going on this spring. Two coming very soon are NUMS and KRYPTOS; please encourage your students to register and attend. The deadlines are very close!

We are also in need of new officers for our section. If you are interested in serving, please contact our Chair, Brian Blitz, at [brian.blitz@uas.alaska.edu](mailto:brian.blitz@uas.alaska.edu).

Colin Starr, [cstarr@willamette.edu](mailto:cstarr@willamette.edu)



## SECTION NEWS

### Alaska

On April 17, Dr. **Colin Starr** of **Willamette University** will install the Alaska Alpha Chapter of Pi Mu Epsilon at **University of Alaska Southeast** and oversee the induction of the first group of UAS mathematics majors into Pi Mu Epsilon. He will also present a talk to Juneau area mathematics enthusiasts on the Nine-Point Circle and Feuerbach's Theorem.

Last summer, **Andrzej Piotrowski** was awarded a grant from the MAA's National Research Experience for Undergraduates Program (NREUP). The program provided support for five undergraduate students from UAS: Andre Bunton, Nicole Jacobs, Samantha Jenkins, Charles McKenry, Jr., and Louie Scott. Many interesting discoveries were made, resulting in a paper which is currently being considered for publication in the journal *Involve*.

### British Columbia

**Simon Fraser University** congratulates **Natalia Kouzniak** on winning the 2013 PIMS education prize for her dedication to her students and tireless efforts for improving the instruction of mathematics and developing young people's interest in the subject.

For further details, please see

<http://www.pims.math.ca/news/natalia-kouzniak-simon-fraser-university-will-receive-2013-pims-education-prize>

The Department of Mathematics at Simon Fraser is pleased to announce a new graduate stream (M.Sc. and Ph.D.) in Operations Research. We are looking for prospective graduate students who want to learn the mathematics behind complex decision-making.

### Oregon

**Hannah Callender of University of Portland** has published two papers:



Hannah  
Callender

Undergraduate Research as a Capstone Requirement with Solazzo and Wilcox, and Mathematical Modeling of Integrin Dynamics in Initial Formation of Focal Adhesions with Blucher\*, Salas\*, and Williams\*, both to appear in early 2014 in *Involve* (\*denotes undergraduate student). Last summer she received an NSF Travel Grant to attend the "Teaching Discrete and Algebraic Mathematical Biology to Undergraduates" workshop at the Mathematical Biosciences Institute, Columbus, Ohio and a Butine for travel to attend the annual meeting of the Society for Mathematical Biology.

**Meike Niederhausen** is spending her sabbatical as a Visiting Scientist in the Biostatistics Shared Resource group at OHSU's Knight Cancer Institute. At the end of the year, she will have completed a Graduate Certificate in Biostatistics.



Meike  
Niederhausen

**Craig Swinyard** was awarded tenure and promoted to Associate

Professor of Mathematics. Craig is a 1998 graduate of UP, who earned his Masters and Ph.D. (2008) in Mathematics Education at Portland State University. His area of research is in undergraduate mathematics education, specifically how students reason about combinatorics and advanced calculus.



Craig  
Swinyard

**Stephanie Salomone** has written a chapter of an upcoming book, *Becoming Beholders: Cultivating Sacramental Imagination and Actions in College Classrooms*, published by Liturgical Press. Her chapter is entitled **THIS I BELIEVE: LINKING THE MATHEMATICAL AXIOMATIC METHOD WITH PERSONAL BELIEF SYSTEMS**



Stephanie  
Salomone

**Colin Starr of Willamette University** was promoted to professor this spring. Congratulations, Colin!

### Washington

**Marilyn Anderson** retired in December after teaching for 36 years at **Bellevue College**. She plans to spend lots of time with her 6 grandchildren.

Three new tenure-track instructors began at BC in September.

**Jasmine Cetrone** is originally from Los Angeles and has degrees from UCLA (Atmospheric Sciences) and the University of Washington (Atmospheric Sciences and Applied Mathematics). She was an adjunct instructor at BC for several years.

**Jennifer Townsend** is from the Chicago area and has degrees from Scripps (Mathematics) and Georgia Tech (Mathematics and Statistics) as well as time abroad with the Budapest Semesters in Mathematics.



Jennifer Townsend, Ricardo Chavez and Jasmine Cetrone

**Ricardo Chavez** is from El Paso and has degrees from New Mexico State University (Mathematics).

Their non-math activities are sky-diving, dancing and mountain biking, respectively. (Ah youth.)

The department is currently interviewing candidates for two more tenure-track positions.

**Jennifer Laveglia** was elected to replace **Dana Updegrove** as department chair. She will serve a 2.25 year term. **Tony Akhlaghi** replaced **Andrea Villines** as Director of the Math Lab for a three year term.

After round one of the AMATYC Student Math League, Bellevue College is first place in the northwest region and second in the nation. We had 196 students participate in round two in February but the results have not been tallied yet.

The **Central Washington University** Mathematics Department is proud to announce that **Dominic Klyve** is one of this year's recipients for the MAA **Henry L Alder** award for distinguished teaching. In January 2003 the

MAA established the Henry L. Alder Award for Distinguished Teaching by



**Dominic Klyve** a Beginning College or University Mathematics Faculty Member to honor beginning college or university faculty whose teaching has been extraordinarily successful and whose effectiveness in teaching undergraduate mathematics is shown to have influence beyond their own classrooms. Each year at most three college or university teachers are to be honored with this national award and are to receive \$1,000 and a certificate of recognition from the MAA. Dr. Klyve is the first winner of this award from our section.

The department of mathematics at **Washington State University** has hired four new faculty members who began in August 2013.

**Hongbo Dong** joined the Department of Mathematics at Washington State University as an Assistant Professor.

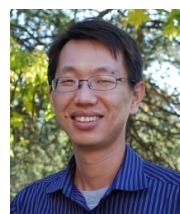


Hongbo Dong

Originally from Hubei, China, he received his PhD degree in Applied Mathematical and Computational Sciences from University of Iowa in 2011. He had two years of postdoctoral training in the optimization group in University of Wisconsin-Madison. His current research is focused on the methodology of convex relaxations and global solution algorithms for mixed-integer nonlinear optimization problems, conic optimization, as well as their applications in various

ious areas.

Professor **Sheng-Chi Liu** has been



Sheng-Chi Liu

hired as an assistant professor. Professor Liu earned his Ph.D. in 2009 at The Ohio State University, and held a postdoctoral position at Texas A&M University from 2009 to 2013. His research interests are in number theory, automorphic forms and representation theory with an emphasis on L-functions. He is especially interested in problems of automorphic forms on  $GL(n)$ , such as quantum unique ergodicity on  $GL(n)$ ,  $L^2$  restriction norms, etc.



Charles Moore

Professor **Charles Moore** was hired as a professor and chair of the department. He earned his Ph.D. at UCLA in 1986, and spent four years in a postdoctoral position at Washington University in St. Louis. Subsequently, he held the positions of assistant professor, associate professor and professor at Kansas State University, and served as associate chair, interim chair, and graduate director of that department. His mathematical interests include analysis, differential equations, and probability.

Professor **Xueying Wang** has been



hired as an assistant professor. She received her Ph.D. in Mathematics from the Ohio State University in 2009. In 2009-2010 she was a Postdoctoral Fellow at the Statistical and Applied Sciences Institute, and was a visiting assistant professor at Texas A & M University from 2010-2013. Her research field is mathematical biology. She is primarily interested

in mathematical modeling and analysis of biological systems, with the aim of addressing the questions that arise from scientific applications. The current applications of interests include E coli O157:H7/cholera infection, synchronization of coupled neurons, and the Trojan Y-chromosome eradication strategy for an invasive species.

The department of mathematics at Washington State University has developed a Master of Science degree especially designed to train students with strong mathematics backgrounds in up-to-date mathematical and computational skills in quantitative finance and insurance. The program took its first students this fall. It was designed by Professors **Haijun Li** and **Hong-Ming Yin**, and is intended to produce high caliber individuals who can confidently undertake interdisciplinary research and analysis in modern financial risk management. This training prepares professionals to work in an analytical capacity in a wide spectrum of financial services such as investment firms, hedge funds, consulting firms, insurance companies, banks, agribusinesses, government regulatory institutions, power and utility companies, and large multinational corporations with exposure to volatile foreign currency exchanges or commodity risk.

The annual WSU Ostrom Lecture was given in March 2013 by Dr. Andrea Bertozzi of UCLA on the "Mathematics of Crime". Dr. Bertozzi's work involves mathematical modeling of crime activity and is collaborative work with other mathematicians, social scientists, and several southern California police forces. This work has received worldwide press coverage. Dr. Bertozzi holds the Betsy Knapp Chair for Innovation and Creativity, and is the Director of Applied Mathematics at UCLA.

Prof. **Jerry Johnson** will retire from **Western Washington University** at the end of the 2013-14 academic year. Prof. Johnson joined Western Washington Uni-



Jerry Johnson  
(now)

versity in 1984. He has since played a key role in our programs in math education. He was highly instrumental in hiring and mentoring faculty in that program and in developing the very distinctive and strong programs in both elementary and secondary math education that we currently offer. His own focus was on secondary math education, and in that role he has been and remains a major influence on many high school math teachers currently active in our region. His energy, creativity and enthusiasm for all things mathematical were evident in the numerous events he organized to stimulate interest in mathematics amongst K-12 and college students, and in the many workshops and professional development opportunities he provided to teachers across the state. These efforts were supported by numerous grants he received, reflecting his stature as a nationally recognized leader in math education. Although he will formally retire from Western, we expect him to continue to be a very visible contributor to math education, not least through his weekly updates to his popular NEXUS website which provides links to articles of interest to math educators and mathemati-

cians generally.



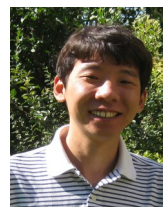
Jerry Johnson  
(then)

cians generally.



Andy Berget

Professor **Andrew Berget** has been appointed to a tenure-track position in Mathematics starting Fall 2014. Professor Berget completed his PhD at the University of Minnesota in 2009, with thesis work done under the direction of Professor Victor Reiner. Professor Berget was a VIGRE Postdoctoral Fellow at the University of California, Davis, and since 2012 has been an Acting Assistant Professor at the University of Washington. His research interests are in algebraic and geometric combinatorics.



Kimihiro  
Noguchi

Professor **Kimihiro Noguchi** has been appointed to a tenure-track position in Statistics starting Fall 2014. Professor Noguchi was an undergraduate at the University of Waterloo, Canada, and completed his PhD at the University of California, Davis, under the direction of Professors Alexander Aue and Prabir Burman. He is currently a Postdoctoral Fellow / Visiting Assistant Professor in the Department of Statistics at Colorado State University. His research interests are in nonparametric statistics, bootstrap methods and time series analysis.