November 2009

Matters Mathematical

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

SEATTLE MEETING
April 9-10, 2010

Contents

By Hans Nordstrom

The upcoming spring meeting of the PNW MAA will be held at Seattle University, located in Seattle's historic First Hill and Capitol Hill neighborhoods. The meeting will begin Friday, April 9, with two minicourses given by Jeff Weeks, author of *The Shape of Space*, and Steve Dunbar, University of Nebraska - Lincoln. Weeks is a well known free-lance mathematician who has provided great insight into the geometry and topology of low-dimensional manifolds. Dunbar's academic specialties are in probability and stochastic processes and their applications; he also finds time to manage the MAA's American Mathematics Competitions. Weeks, Dunbar, and Gerard Venema, Calvin College, will give the invited addresses scheduled for Friday and Saturday. Known for his work in Geometric Topology, Venema is also an Associate Secretary of the MAA, an Associate Editor of the American Mathematical Monthly, and a co-principle investigator for an NSF funded REU program at Calvin College.

In recent years, a priority of the section has been that the Spring meeting both attract and highlight its undergraduate student activities. The program committee has selected invited speakers whose talks will appeal to both section members and undergraduate students. A considerable portion of the contributed program will be dedicated to undergraduate talks, a poster session, and other activities for students.

More information regarding the meeting, including lodging, can be found at:

http://www.seattleu.edu/scieng/math/Default.aspx?id=28096

Prospective attendees should note that reservations for the meeting hotels must be made at least one month prior to the conference in order to receive the group rate.

Seattle University, a Jesuit Catholic institution, began as a parish school when it was founded in 1891 by Fathers Victor Garrand, S.J., and Adrian Sweere, S.J. The University has always been a cornerstone of the surrounding communities and has a long history of investing and partnering with the community in the Jesuit Catholic tradition of education for service and social justice. In recent years, the University has grown consid-

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Classroom Democracy

Carroll College has received a grant from the National Science Foundation for $180,000 to run a three-year project (Jan 2010 - Dec 2012) entitled "MathVote: Teaching Mathematics with Classroom Voting." Carroll College mathematics faculty **Kelly Cline** and **Holly Zullo** will be running Project MathVote. The purpose of MathVote is to bring together a team, including five other faculty from five other institutions across the country, in order to study the use of classroom voting in collegiate mathematics and to develop curricular materials for this. The other faculty will be Prof. David Lomen of the University of Arizona, Dr. Jean McGivney-Burelle of the University of Hartford, Dr. Ann Stewart of Hood College, Dr. Kathleen Shay of Middlesex County College, and Everilis Santana of the Community Colleges of Rhode Island.

Holly Zullo

Kelly Cline

Classroom voting is a teaching technique wherein the instructor poses a multiple-choice question to the class, then allows a few minutes for students to work and discuss things in small groups, before every single student in the entire class must vote on the best answer, usually with a hand-held electronic "clicker." Student votes are instantly received and tabulated on a computer which displays a histogram of the results, providing immediate feedback to both the students and the instructor. After the vote, the instructor can go around the room and Socratically ask different students to explain their votes, guiding a classroom discussion to learn the key points.

This teaching method has been used in mathematics courses at Carroll College since Fall 2004 with great success. It is highly effective at producing a more interactive classroom, getting each and every student to engage, participate, and intellectually grapple with the relevant issues. As a result of using classroom voting, students report that they have more fun in math class, and faculty report that students appear to learn more as well. Project MathVote will begin with a meeting of the project team at Carroll College during June 2010 to organize the questions that the team will be writing and testing, as well as the research that the team will be conducting in order to investigate how this teaching method can be used most effectively. This grant follows an earlier NSF-funded project, "Math QUEST: Math Questions to Engage Students" in which Dr. Zullo and Dr. Cline, along with **Mark Parker**, received $100,000 to develop classroom voting questions for Carroll College mathematics courses in linear algebra and differential equations.

erably, and hosts over 7500 undergraduate and graduate students. Seattle University recently concluded its largest and most successful capital campaign, having raised nearly $169 million.

Jeff Weeks at the Seattle University Meeting

Friday minicourse: Visualizing 4-Dimensional Space

Friday public lecture: The Space of Space

Saturday lecture: Visual Introduction to Curvature

Upcoming Events and Conferences

Upcoming Meetings:

2009 Combinatorial Potlatch (see below)
2010 PNWMAA at Seattle University
2011 PNWMAA in Juneau, Alaska
http://www.math.ubc.ca/~cayf/events.html (section)
http://www.maa.org/subpage_4.html (national)

n-th Annual Combinatorial Potlatch

The Combinatorial Potlatch is an international one-day research conference. It has been held for many years at various locations around Puget Sound and southern British Columbia, and is an opportunity for combinatorialists in the region to gather informally for a day of invited talks and conversation. While most who attend work in, or near, the Puget Sound basin, all are welcome. Typically there are two or three talks given by speakers who are visiting the area, along with breaks for coffee and lunch. Many participants remain for dinner at a local restaurant or pub.

There is **no registration** needed, **nor is there a registration fee**. Full details are available at

http://buzzard.ups.edu/potlatch/2009/potlatch2009.html.

The next Potlatch will be held at the downtown Vancouver Harbour Centre campus of Simon Fraser University on Saturday, November 21, 2009. The program includes the following talks:

- Louis Deaett, University of Victoria, New dimensions to graph coloring
- Glencora Borradaile, University of Oregon, Graph constrained knapsack problems
- Omer Angel, University of British Columbia, Locally transitive graphs

The first talk will be mid to late morning, to allow for travel, followed by a no-host lunch, and two talks later in the afternoon. Many participants choose to stay for dinner locally.

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Call for Session Organizers

In preparation for the 2010 Pacific Northwest Section MAA Meeting to be held April 9-10 at Seattle University in Seattle, WA, we are now inviting proposals for special sessions. Session Topics at recent meetings and possible new sessions include:

- Junior Faculty Research
- Student Research/REU
- Student Papers on Modelling and the MCM
- Pedagogical techniques and classroom models
- Modeling in Biology/Environmental Sciences
- Discrete Mathematics
- Algebra/Algebraic Geometry
- Differential Equations and Dynamical Systems
- Activities of Successful Math Clubs
- Introduction to Proof-Writing courses
- Theory, Education, and Applications in Probability, Statistics and Actuarial Science
- Senior Thesis/Capstone projects

If you are interested in organizing a session of talks on any of these topics or another of your choice, please submit your proposal by January 15.

Your proposal should include:

1. Title of the session
2. Name of the organizer(s) and their detailed contact addresses
3. One or two paragraphs describing the theme and topics covered by the session
4. The names of a few potential speakers along with their institutional affiliation.

Please e-mail your proposal by January 15 to

Hans Nordstrom: nordstro@up.edu

Book Review: *Pythagoras' Revenge*

Reviewed by James D. Harper of Central Washington University (harperj@cwu.edu)

Pythagoras, the man known by his theorem and his cult, is the vehicle for Arturo Sangalli's mystery novel *Pythagoras' Revenge*. Pythagoras and his followers were very secretive; they left no known written documents. The novel is based on the "what if:" what if there were some documents either by one of his followers or by Pythagoras himself, or both, passed down, copied and eventually sealed and spirited away to a hidden location? Using this "what if" as the primary premise, Sangalli weaves a suspenseful tale involving a modern day cult, a professor of classical Greek civilization and a host of other denizens. For such a short novel there is a large cast of characters. Among them is the aforementioned Oxford professor, an American mathematician, a Canadian curator, the Neo-Pythagoreans and a mathematical prodigy-genius. There is no one protagonist, the closest to such is the American mathematician who decides, in the midst of what one could call a mid-life crisis, to join the Neo-Pythagoreans. The story is plot driven, frequently bouncing from the Oxford professor to the American mathematician to Neo-Pythagoreans, with occasional flashbacks to the time of Pythagoras.

Most of the action takes place in the late 1990s, specifically 1997 -98. The Oxford professor is given an opportunity to examine a 13th century Arabic translation of an ancient Greek document that appears to have been written by one of Pythagoras' followers. However, the text he is given is clearly only half of the document. Where is the other half? Stolen! The professor suspects that there is another ancient Pythagorean text and he follows the clues to Rome to search for it. Meanwhile, the Neo-Pythagoreans believe that Pythagoras himself has been recently reincarnated and they need to find him to save the world. (I know, this sounds hokey, but Sangalli does not let this Pythagorean mysticism drag you too far into moans, groans and exasperated sighs.) At about the same time the mathematical genius makes a major breakthrough into the understanding of chaos and randomness. Randomness and chaos are the antithesis of the Pythagorean creed that all is number. As the plot winds and unwinds the characters cross and collide to a satisfying conclusion.

As it says on the jacket cover, this is a "mathematical mystery." There are digressions into primes, combinatorics, randomness and, of course, the Pythagorean theorem. I particularly enjoyed the discussions on the challenge of defining random sequences and using random numbers in computer models.

As a caveat, there were a couple of items that jarred me. One was a reference to "Google." In 1998. At that time Google was still a work in progress in Susan Wojcicki's garage. An exasperated sigh came when a University of Illinois Ph.D. grad was hired right out of the chute at UI and rose to rank of full professor in only six years. As you know most schools do not hire their own, and, if they do, they usually want that person to go somewhere else for awhile. Even for the brightest of stars it takes more than six years to become a full professor. But these minor irritations didn't spoil, for me, a good read.

Arturo Sangalli has a doctorate in mathematics and is a freelance science journalist. Some of his writings have appeared in the journal *New Scientist*.

Pythagoras' Revenge by Arturo Sangalli
183 pp with four appendences and bibliography
published by Princeton University Press
list price: $24.95

Editor's Greetings

Thanks once more to all contributors, and welcome to all of the new faculty in our region. Please take note of the *n*-th Annual Combinatorial Potlatch coming up right away, and remember to register early for the Seattle U meeting. Happy holidays!

Colin Starr, cstarr@willamette.edu

SECTION NEWS

Alaska

Dr. Brian Wick is retiring from the **University of Alaska Anchorage** in June 2010. He obtained a BS and MS degree in Mathematics from San Diego State University, and a Ph.D. in Mathematics from the University of Washington in 1972. In August 1972, he was hired by the Anchorage Senior College as the first full-time mathematics faculty member. He developed the mathematics degree and, together with a few adjunct faculty, taught the whole program.

For ten years, Dr. Wick was the department chairperson for Mathematics, as well as Division Head of Mathematics and Science for one year. During this time the Anchorage Senior College became the University of Alaska, Anchorage. The university was growing in student body and course offerings, so Brian started teaching courses in statistics, physics and computer science before full-time faculty were hired in those areas.

In 1997, Brian received the "Award for Distinguished College or University Teaching of Mathematics in recognition of extraordinarily successful teaching" given by the Northwest Section of the American Mathematical Association. In 2002, he received (together with Stan Wagon and Ellen Guenther) the Chauvenet Prize awarded by the Mathematical Association of America. Also in 2002 he received University of Alaska Anchorage Chancellor's Award for Excellence in the area of Outstanding Research.

Brian Wick has always used innovative teaching techniques, and in 2004, started teaching using a Tablet PC in the classroom. He has taught all levels of Mathematics from preparatory course to graduate courses.

When he retires, he will remain in Anchorage. He intends to continue research in computational mathematics, as well as devote more time to his hobby of large format photography.

Affiliate Professor

Dr. Don Stevens, Jr. has been appointed as an Affiliate Professor of Statistics in the Mathematical Sciences Department at the University of Alaska Anchorage. Dr. Stevens has over 30 years of experience of high caliber research, and has published over 50 articles in peer reviewed journals. He was awarded the distinguished Achievement Medal in 1999 by the Section on Statistics and the Environment of the American Statistical Association. Dr. Stevens received the honorary title of *Fellow* in 2008 from the American Statistical Association. The title recognizes members who have made outstanding contributions to an aspect of statistical work.

British Columbia

Simon Fraser University will host the *n*-th Annual Combinatorial Potlatch on November 21, 2009. Please see the article in this issue for further details.

Oregon

Amy Yielding has joined the faculty at **Eastern Oregon University** as an assistant professor. Dr. Yielding completed her PhD in 2009 at Washington State University, under the direction of the fabulous Dr Judith J McDonald. The title of her dissertation is "Spectrally Arbitrary Zero-Nonzero Patterns." Her research interests are in Combinatorial Matrix Theory (in all its power and beauty). Her hobbies are backpacking, climbing, hiking, biking, yoga, and gardening.


Amy Yielding

Michael Hitchman joined the **Linfield College** mathematics department in Fall 2009. He was formerly at the College of Idaho.

Jennifer Nordstrom and **Chuck Dunn** worked with four undergraduates and a middle school teacher through the NSF-funded Willamette Valley REU-RET program. The research focused on competitive graph coloring. The students were David Morawski of UC Berkeley, Troy Retter of Arizona State University, Cassie Naymie of the University of Waterloo, and Charlie Suer of the University of Dayton. The middle school teacher, Erin Pitney, works in the Beaverton School District and is an alumna Linfield College. There are three papers in preparation related to this work


Jennifer Nordstrom


Chuck Dunn

Xiaoyue Luo worked with Linfield students Cynthia Lester and Ruya Huang on finance and inverse problems. This work was funded through the Linfield Student-Faculty Research Grant.

Maggie Wigness, **Pacific University** class of '10, was featured in the Oregonian for her research with Professors **Chadd Williams** and **Mike Rowell** on the mathematics of college football ranking systems. Wigness spoke at the New England Symposium on Statistics and Sports at Harvard University.

Chadd Williams

Pacific sent 3 students to the Nebraska Conference on Woman in Mathematics in 2009, where 2 students spoke. 15 students attended the PNW-MAA section meeting last Spring, with 5 students giving presentations.

Nancy Neudauer completed her term as Governor of the PNW-MAA section. She continues to be very active in the MAA. She is organizing a short course on Matroid Theory at the Joint Mathematics Meetings for 2011.

Nancy Neudauer

Michael Boardman is in his third year as the Chief Reader of the AP-Calculus program of the College Board.

The Mathematics Department at **Western Oregon University** welcomed two great speakers to campus this past year. **Kendra Killpatrick (**Pepperdine University) visited with the help of the Pi Mu Epsilon National Lectureship Program, and **Jamie Pommersheim** (Reed College) was the speaker for WOU's Pi Mu Epsilon (Oregon Delta Chapter) induction ceremony.

Jamie Pommersheim

Cheryl Beaver, **Laurie Burton**, and **Klay Kruczek** will give the minicourse *Active Learning Approaches for the Foundational Mathematics for Elementary Teachers' Courses* at the 2010 Joint Meetings in San Francisco.

Klay Kruczek

Masaki Ikeda (Math 2009) received an award funded by the AMS and the ASA for excellence in student exposition and research at the 2009 MathFest .

WOU's 2009 mathematics graduates finished in the 95th percentile in the nation on the Major Field Test, put out by ETS. We consider this a great accomplishment.

Cheryl Beaver, **Scott Beaver**, and **Klay Kruczek** were all awarded tenure this year and were promoted to Associate Professor. **Hamid Behmard** was also promoted to full Professor.

Scott Beaver

Kathryn Nyman

The **Willamette University** Mathematics Department welcomes **Dr. Kathryn Nyman**, our newest faculty member. Kathryn earned her Ph.D. from Cornell in 2001 and comes to us from Loyola University .

Washington

Effective April 2009, **Bellevue Community College** has changed its name to **Bellevue College**, as it now offers two 4-year degrees, a Bachelor of Applied Science in Radiation and Imaging and a Bachelor of Applied Arts in Interior Design.

Two new full-time, tenure-track faculty have joined BC's Math Department this fall. **Ryan Bauer** earned his Ph.D. in mathematics (graph theory) from the University of Idaho, and **Mausumi Maulik** earned her M.S. in mathematics from H.N.B. Garhwal University, in Srinagar, India.

Central Washington University's most recent (non-tenure track) faculty member is **Linda Schmidt**. Linda has over ten years of teaching experience, most recently teaching at community colleges in Portland and in the Tri-Cities. She has a bachelors degree and an MAT degrees from Emory University in Atlanta, Georgia. She also has a Masters in applied mathematics from the University of Central Florida in Orlando. Linda's hobbies include playing music on a synthesizer keyboard and playing chess.

Michael Rempe

Whitworth welcomes two new faculty members this fall: **Michael Rempe** (applied math) just finished a postdoc at Ohio State University, and **Nathan Moyer (**cryptography/combinatorics) who is completing his PhD in math from Washington State University.

Nathan Moyer

Dr. **Lyle Cochran** has a new calculus text appearing in early 2010 from Pearson. His co-author is William Briggs.

Lyle Cochran