North Central Mathematical Bulletin

The Newsletter of the North Central Section
of the Mathematical Association of America

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Fall 2012, Volume 15, Number 2

Upcoming Meeting

Hope to See You at the University of Minnesota-Duluth!

University of Minnesota-Duluth will host the MAA-NCS Fall Meeting, October 19-20.

A program for the Fall 2012 meeting will be posted approximately one to two weeks on the MAA-NCS website prior to the meeting.

Invited Speakers and Abstracts

- Beth Skubak - University of Wisconsin

  Title: Polynomials, Ellipses, & Matrices: Three Questions, One Answer

  Abstract: Given two points a, b in the unit disk, when is there a cubic polynomial with roots on the circle with a, b as critical points? I'll describe the connection between this question and two others, one geometric and another concerning matrices, and give the one concise answer for all three questions. The result and its proof extend very naturally to any finite number of points by using a specific type of rational function, called a finite Blaschke product, both as a proof tool and as a link between the three scenarios. This work was the culmination of an undergraduate research project and honors thesis at Bucknell University under Professor Pamela Gorkin.

- Joseph A. Gallian - University of Minnesota Duluth

  Title: Getting Undergraduates Involved in Research

  Abstract: Although involving undergraduates in research has been a long standing practice in the experimental sciences, it has only been fairly recently that undergraduates have been involved in research in mathematics in significant numbers. In this talk I discuss in general terms such things as how faculty can get started in involving undergraduates in research, the benefits of undergraduate research to faculty and students, how to find suitable research problems, and what is considered to be undergraduate research.

Officer Reports

Govenor's Report

Steve Kennedy, Carleton College

I represented our section at the Board of Governors meeting at Mathfest in Madison in August. That meeting (chaired by MAA President Paul Zorn from our section) introduced us to a new slate of officers as Bob Devaney was introduced as President-Elect and Jenny Quinn and Lloyd Douglas began their terms as Vice-Presidents. Michael Pearson, the new Executive Director as of February 1 was also in attendance.

As usual much of that meeting focused on the financial situation of the Association. We learned that 2012 will be the eighth consecutive year that the MAA has run an operating deficit. It is unsustainable in the long run to do that every year and we need to find ways to run a surplus on occasion. The board decided to endorse several business investments proposed by MAA staff designed to potentially increase revenue in the future. In particular there are plans to increase the revenue streams from the books program and the American Mathematics Competition as well as to develop course packages and e-texts that can be delivered over the Web. You might see the effects of some of those business practice changes soon.

The Board also approved a resolution endorsing double-blind refereeing in the MAA journals. This was a bit more controversial than I expected. There is not much evidence of bias in the the refereeing for our journals, but many folks argued that adopting double-blind reviewing would eliminate the perception that there could be any. Your governor believes that, given that there are members of the Association who believe there might be such a bias and given the evidence I've seen of implicit bias, the gain to the Association of adopting double-blind reviewing outweighed the potential cost (the increased ease of refereeing if the referee knows the author's identity). I voted accordingly.

Mathfest in Madison was a blast. I heard great lectures by Bernd Sturmfels, Amie Wilkinson, Robert Ghrist, Sylvia Bozeman and others. I heard a bunch of great ideas for new things to try in the classroom. Madison was beautiful (and full of good restaurants). And the MAA Players (including our own Paul Zorn) put on an incredible show.

I hope to see many of you in Duluth.

Respectfully submitted,
Steve Kennedy

President's Report

Dan Kemp, South Dakota State University

Welcome back to what I expect to be an exciting and interesting year. I attended the Section Officer’s meeting at MathFest this past summer and there was nothing terribly important to report. The MAA does have a new executive director, Michael Pearson, who many of you may remember as a long time MAA staff member.

The Fall NCS meeting will be at UMD and I hope to see many of you there. Our featured speaker on Friday night will be Beth Skubak from the University of Wisconsin. She is the co-author of a wonderful paper that appeared in the June-July, 2011 issue of the AMM. Our Saturday morning speaker is no stranger to us: Joe Gallian will be telling us about undergraduate research. Of course there will also be other wonderful talks provided by you as long as you get your proposal submitted by 5:00 p.m. on

Friday, October 5, 2012. See the section website (http://sections.maa.org/northcen/) for more information.

Our section will honor members with a Distinguished Teaching Award and Distinguished Service Award at the spring meeting at Gustavus Adolphus College. Please be thinking about your colleagues you would like to nominate for these awards. See the section website for more information and nomination forms.

We will also honor several other members by electing them to office. Several NCS offices will be open this year. If you are interested in serving the NCS and therefore the MAA please get in contact with myself or any of the other section officers. Again, see the section website for all their names and contact information.

Treasurer's Report

Dale Buske, St. Cloud State University

As usual, the North Central Section enters the new academic year in good financial shape. I will soon be sending out letters to the section's department chairs asking your institutions to become institutional members of the NCSMAA. Last year 19 colleges and universities became institutional members raising a total of $475 to support Section NExT activities. Institutional memberships are again only $25 a year.

As in previous years, student speakers at this fall's meeting can request reimbursement for up to $100 in travel, lodging and meal expenses. To receive funds they should fill out a reimbursement request form which can be downloaded (here) and give it to me at the meeting.

Lastly, I just want to remind members that the book sale at the fall and spring meeting is no longer "cash and carry." Instead, the book sale is an opportunity to browse and order at a discount rate (during the meeting only). All books are mailed to you shortly after the meeting. The NCSMAA also receives a commission on these sales. I hope to see many of you at the fall meeting in Duluth.

Student Activities Coordinator's Report

Aaron Wangberg, Winona State University

The section continues to be active with students at regional and national conferences. At MathFest in Madison, Wisconsin, sixteen students and faculty from the NCS-MAA enjoyed lunch on State Street (see picture). The section will again organize a lunch at the Joint Mathematics Meetings again in January. We are planning a student activity for the fall meeting, and together with the Pi Mu Epsilon conference, we will be sharing an open math problem designed for individual math clubs to complete and present at the spring Pi Mu Epsilon conference held at the College of Saint Benedict and Saint John's University. (lunch at MathFest)

Campus News

Augsburg College

We are welcoming **Pavel Belik** back from sabbatical, while wishing **Ken Kaminsky** the best of luck on his. We are happy to welcome **Ismael Talke** in a full time visiting position. Ismael just received his Ph.D. in Statistics from Montana State University.

Matt Haines is in the early stages of planning our third annual Twin Cities Math Jeopardy tournament for sometime this fall.

Tracy Bibelnieks continues to work as the director of the MN State High School Math League.

Under the guidance of **Rebekah Dupont**, Augsburg received a $600,000 grant to create a scholarship fund for STEM majors. Thanks Rebekah!

Continuing faculty in the department include Pavel Belik, Tracy Bibelnieks, Su Doree, Rich Flint, Matt Haines, Ken Kaminsky, Jody Sorensen and John Zobitz, along with our wonderful adjuncts Dawn, Jason, Sue, Anna, Tami, and Alyssa. *(submitted by Jody Sorensen)*

Carleton College

We are excited to welcome three new faculty members to Northfield this year.

Brian Shea is a PhD candidate in Statistics at UMN. Brian has an undergraduate degree from St. John's College in Maryland and is teaching two sections of introductory statistics for us.

Andrew Gainer-Dewar comes to us fresh off his PhD work at Brandeis in combinatorics. He says he "counts graphs." Andrew's undergraduate work was done at Mercer College. Andrew will be visiting Carleton just for this one year and lists hobbies of cooking, homebrewing and "traditional shaving."

Rafe Jones has been hired in a tenure-track position. Rafe earned his undergraduate degree from Amherst College and his PhD from Brown for work done under the direction of **Joe Silverman**. Rafe describes his work as lying at the crossroads of number theory, dynamical systems and arithmetic geometry. Rafe comes to Carleton after several years teaching at Holy Cross College, he extra-mathematical interests include running, cross-country skiing and befriending fellow francophiles.

Highlights of the fall semester at Carleton will include the second annual Math Across the Cannon lecture series, this year's visitor (joint with St. Olaf) is **Rebecca Goldin** of George Mason University. Professor Goldin will be in Northfield on October 1 and will give lectures at both colleges. Also jointly our two departments will host the nth annual Northfield Undergraduate Math Symposium on September 25. All friends of mathematics are welcome at both of these events. *(submitted by Steve Kennedy)*

College of St. Benedict/St. John's University

St. Ben's and St. John's are pleased to welcome **Robert Campbell** to the department.

Jennifer Galovich and **Tom Sibley** are on sabbatical for the year at Virginia Tech. Jennifer is at the Virginia Bioinformatics Institute, where she is investigating research projects for herself and her future students. Tom is at the math department there, rewriting his geometry textbook. (If you are interested in classroom testing the rewritten version, let him know.)

Three of our students gave talks at Mathfest: **Preston Hardy** and **Margaret Peterson** did summer research with **Bob Hesse** and **Marie Meyer** did research with **Bret Benesh**. Marie and Margaret won prizes for their talks. Eight other students did REUS and two had internships this past summer. **Whitney Radil** has had the joint paper from her previous REU accepted for publication. *(submitted by Tom Sibley)*

Concordia College-Moorhead

Concordia College Moorhead bid farewell to **Jessie Lenarz**, who moved over to the math department at Minnesota State University Moorhead, and to **Anders Hendrickson**, who moved to the math department at St. Norbert's College in Wisconsin. Replacing them this year are **Jim Forde**, long-time math faculty member at Concordia coming back from retirement, and **Lindsay Erickson**, a 2011 Ph.D. from North Dakota State University. *(submitted by Doug Anderson)*

Gustavus Adolphus College

Senior Mathematics major **Chloe Radcliffe** was chosen to deliver the 2012 commencement address. Chloe was truly a rennaisance student - she was a star on the college forensics team and had a minor in theatre.

Returning from sabbatical leave this fall are **Jeff Rosoff** and **San Skulrattanakulchai**. Jeff and San were world travelers during their sabbatical, with Jeff spending time in Paris and San in Thailand.

Barbara Kaiser has rejoined the department after working three years in the Dean's office.

We are looking forward to hosting the spring NCS-MAA meeting at Gustavus. We hope you can join us. *(submitted by Mike Hvidsten)*

Macalester College

Victor Addona was awarded tenure last spring. Congratulations!

Stan Wagon will be retiring from teaching at the end of the semester. Stan joined the Macalester faculty in 1990, when he and his wife, **Joan Hutchinson**, came to Macalester from Smith College. We will miss Stan's many outstanding contributions to our department and to the North Central Section.

Joining our faculty in visiting positions this year are **Lisa Lendway** and **George Leiter**. Lisa is a 2003 graduate of Macalester, who earned her PhD in Statistics from the University of Minnesota in 2012. George is also a Macalester graduate and holds the Schilling Endowed Chair in Mathematics at Saint Paul Academy, from where he is on sabbatical during the 2012-2013 school year.

On October 3, at 3:30 PM, our annual Math and Society Lecture be given by **William Cook** of Georgia Tech. Professor Cook has written a beautiful new general-audience book on the Traveling Salesman Problem.

On November 1, **Karen Saxe** will be speaking in the Distinguished Lecture Series in honor of Paul Halmos at its Carriage House Conference Center at the MAA headquarters on Dupont Circle in Washington DC.

Finally, we are hiring a tenure track position this year. *(submitted by Tom Halverson)*

Minnesota State University - Moorhead

The MSUM team consisting of students **Shouvik Bhattacharya**, **Murshid Saqlain**, and **Pragalv Karki** received honorable mention in the 2012 Mathematical Contest in Modeling sponsored by COMAP. They submitted a solution to the problem of sending an optimal number of river rafting trips to ensure that no two trips intersect in their travels and that trip members have the best chance to enjoy the wilderness. Their approach involved graph theory and combinatorics.

Spring graduate **Chris Mehl** will be attending graduate school at the University of Oregon, where he plans to study topology.

Ms. **Bonnie Schmidt** retired from the department last spring. She first taught here in 1982 and taught for many years on a fixed term basis.

There are a number of other staffing changes in the department. Dr. **Damiano Fulghesu** changed from fixed term to probationary status, and Ms. **Tammy Fitting** was hired as a continuing faculty member to be Director of the Mathematics Learning Center. Ms. Fitting was a temporary member of the department faculty some years ago. Dr. **Aggie Chadraa** and Dr. **Jessie Lenarz** are new fixed term faculty. Dr. Chadraa got his Ph.D. in time series and stochastic processes from Colorado State University. Dr. Lenarz got her Ph.D. from Iowa State University in combinatorics and bioinformatics. Also, **Dr. Carol Okigbo** returns from a year-long sabbatical leave. *(submitted by Wally Sizer)*

Normandale Community College

We welcomed **Sridevi Pudipeddi** as a new UFT faculty this Fall.

We initiated a concurrent enrollment class with the St. Croix Preparatory Academy.

We continue to tweak our Math Center redesign, based on the use of ALEKS in all our sections of pre-algebra, introductory algebra and intermediate algebra. We will be monitoring success rates very carefully, but so far we have noted a significant decline in W's.

We were invited to join the Carnegie Foundation for the Advancement of Teaching's new PathWays initiative. We sent a team, including the academic VP and divisional Dean to the Pathways national Conference in Santa Cruz this last July, and will begin offering several sections of StatWay statistics starting Fall of 2013.

We continue to bask in the glow of our Central Region championship in the national AMATYC exam, including both the top male and female finishers in the region. *(submitted by Christopher Ennis)*

St. Cloud State University

At St. Cloud State University this year, we welcome three new colleagues – Dr. **Chandana Wijeratne**, Dr. **Nancy Sundheim**, and Dr. **Carol Theisen**. These three new colleagues are helping replace the loss of six faculty taking sabbatical this year (Dr. **Sonja Goerdt**, Dr. **Keith Agre**, Dr. **Nick Fiala**, Dr. **Roozbeh Vakil**, Dr. **Bill Branson**, and Mr. **Miles Hubbard**). Dr. **Jeff Chen** will also be away this academic year as he received a Fulbright Award to study in northern China. Dr. **Danrun Huang** is back on campus again after spending yet another summer teaching at the University of Michigan UM-SJTU Joint Institute in Shanghai, China. *(submitted by Dale Buske)*

St. Catherine Univeristy

The Math and Physics Department at St. Catherine University has a new look. **Sister Adele Rothan** and **Terry Flower** (Physics) retired last spring. **Dan O'Loughlin** is on leave, teaching at St. Paul Academy for the year. As such we have three new members of the department. **Kristine Pelatt**, who received her Ph.D. from University in Oregon will be replacing Sister Adele. She is a Knot Theorist and will physically join us in January, as she is expecting her second child any day now. **Jolene Johnson**, who will be defending her doctoral thesis in September, is replacing Terry. **Adam McDougall** is replacing Dan. He received his Ph.D. from University of Iowa and did a two-year teaching post doctorate at St. Olaf College.

Erick Agrimson presented at the 3rd Academic High Altitude Balloon Conference in TN in June. His topic of research was daytime and nighttime effects of the high altitude balloon wake. His Coauthor was Dr. **James Flatten** of the University of MN. Dan O'Loughlin once again spent a week grading AP Statistics exams this summer. **Kathy Radloff** led an undergraduate research project over the summer. She and her students looked at modeling the game Brain Cube, and investigated several mathematical questions inspired by the game. *(submitted by Kathy Radloff)*

St. Olaf College

The Department of Mathematics, Statistics, and Computer Science at St. Olaf College welcomes **Marju Purin** as our newest tenure-track mathematician. Marju is a 2011 graduate of Syracuse University and spent one year at Manhattan College. A native of Estonia, she says that Northfield reminds her of home. Marju is an algebraist who specializes in homological algebra and representation theory.

Kosmas Diveris, a 2012 graduate of Syracuse University will be joining us this year. He is a commutative algebraist who studied under **Claudia Miller**.

Kevin Sanft is the first of two post-docs associated with a $1.6 million NSF grant awarded to Principal Investigator **Julie Legler**. The grant will help expand the college's Center for Interdisciplinary Research to include applied mathematics and computer science along with statistics. Kevin is a computer scientist who earned his PhD in 2012 from the University of California, Santa Barbara.

Ryota Matsuura was recently awarded a $71k NSF grant for a project entitled " Collaborative Research: Assessing Secondary Teachers' Algebraic Habits of Mind."

We wish **Julie Legler** good travels as she leads a group of students on St. Olaf's Global Semester. The itinerary for Global Semester takes the group around the world with visits to Switzerland (the United Nations Headquarters in Geneva), Egypt, India, Thailand, Hong Kong, China and South Korea. Students will take a full load of courses, including Julie's course: Health, Wealth and Happiness: Measuring Quality of Life Cross-Culturally.

We welcome back **Tina Garrett** from a full year sabbatical during 2011-12. Along with teaching courses, Tina will continue to serve as the North American Director of the Budapest Semesters Program, and will join colleagues at Macalester College and Colorado College in designing an online mathematics course. *(submitted by Jill Dietz)*

University of Minnesota - Morris

In Fall 2012, we welcome a new tenure-track faculty member, Dr. **Christopher Atkinson**. Chris earned his Ph.D. in mathematics from the University of Illinois at Chicago, and his B.S. in mathematics from the same institution. His research interests include hyperbolic geometry, geometric topology in 3-dimensions, and low-dimensional topology.

In April 2012, **Michael Rislow** (UMM 2012) presented his undergraduate research on "Structuralk Properties of Bases and Circuits of Directed Hypergraphs" at the Pi Mu Epsilon conference at St. Johns University, MN. This is a joint research work with Professor **Peh Ng**. *(submitted by Peh Ng)*

University of North Dakota

Michael Minnotte was promoted to full professor. **Jerry Metzger** and **Ryan Zerr** were presented UND Spirit Awards. **Bruce Dearden**, **Thomas Gilsdorf**, **Doojin Hong**, **Michele Iiams**, and **Jerry Metzger** were named as UND Faculty Stars (a local teaching award). Ryan Zerr has agreed to become our new Associate Chair, replacing **Gerri Dunnigan**. *(submitted by Joel Iiams)*

University of St. Thomas

We have added three new faculty members in the Department of Mathematics and Actuarial Science:

- **Amy DeCelles** received her B.S. in Mathematics from the University of Chicago in 2005 and her M.A. and Ph.D. in Mathematics from the University of Minnesota, in 2009 and 2011, respectively. She taught for one year at Goshen College, in Northern Indiana, before joining the faculty at the University of St. Thomas this fall. She is a 2012 Project NExT fellow. Her teaching interests include structuring classes to encourage more active student participation and higher order thinking, e.g. through group work, projects, and writing assignments. Her research is in number theory, more specifically applying the spectral theory of automorphic forms to number theory, e.g. to the subconvexity problem (in the absence of the Riemann Hypothesis, such results are useful) and lattice-point counting in symmetric spaces. When not doing mathematics, she enjoys the outdoors, hiking, biking, and bird-watching.

- **Thomas Höft** joins the UST Math Department from Tufts University, where he was Norbert Wiener Assistant Professor (a fancy name for "temporary"). His research interests focus on inverse problems in imaging, though he'll work on most anything combining physics, computing, and mathematics. Prior to Tufts, he was a visitor at NIST, and spent the five years before that working in industry R&D at Lockheed Martin Coherent Technologies just outside Boulder, CO. His Ph.D. was earned at the University of Minnesota under the direction of Fadil Santosa; his B.A from St. Olaf college. In his "spare" time, he can be found hiking, playing ultimate, banging on drums, or hanging out with his family. He misses the mountains but is glad to be around lakes again.

- **Thorsten Moenig** is a native German, he studied Economathematics at the University of Karlsruhe (now: Karlsruhe Institute of Technology), before coming to the U.S. in 2005. He earned a Master's Degree in Math from the University of Connecticut, and this year received a PhD in Risk Management and Insurance from Georgia State University. He is excited to start his new life as an Assistant Professor at the University of St. Thomas. His primary research interests are in insurance economics and actuarial science. He currently analyzes the effects of policyholder behavior on withdrawal guarantees in Variable Annuities, the potential benefits and caveats of Pay-As-You-Drive car insurance, the signaling mechanism behind public bailouts, and whether individuals have stable preferences for risky outcomes. In his free time he enjoys playing tennis, watching soccer or a good movie, and spending time with friends.

Prof. **Eric Rawdon** is a co-author of a paper published in the Proceedings of the National Academy of Sciences, entitled: Conservation of complex knotting and slipknotting patterns in proteins. Abstract: While analyzing all available protein structures for the presence of knots and slipknots, we detected a strict conservation of complex knotting patterns within and between several protein families despite their large sequence divergence. Because protein folding pathways leading to knotted native protein structures are slower and less efficient than those leading to unknotted proteins with similar size and sequence, the strict conservation of the knotting patterns indicates an important physiological role of knots and slipknots in these proteins. Although little is known about the functional role of knots, recent studies have demonstrated a protein-stabilizing ability of knots and slipknots. Some of the conserved knotting patterns occur in proteins forming transmembrane channels where the slipknot loop seems to strap together the transmembrane helices forming the channel. Eric is currently on sabbatical.

Prof. **Mike Axtell** is Co-PI on NSF grant #1225566. Abstract: This project team is building on an earlier effort that prepared the groundwork for an "overhaul" of the traditional three-term calculus course to better serve the needs of all STEM students, beyond just those in the traditional engineering and physical sciences track. The central innovation is to move topics and conceptual coverage needed in upper-level STEM courses into the first two terms of the traditional three-semester sequence. The PIs hypothesize that such a tactic has several beneficial consequences: i) Calculus 2 becomes an attractive "jumping-off" point for students in biology and chemistry; ii) a natural progression of difficulty throughout the full three-course sequence results; and iii) there is room in Calculus 3 to complete vector calculus through Stokes Theorem and the Divergence Theorem. In practice re-sequencing the topics involves a number of changes, including: 1) an early introduction to multivariate calculus, vectors, and sequences; 2) a postponement of infinite series; 3) an early, although brief, treatment of matrices; and 4) the de-emphasis, deletion, or redistribution of a handful of other topics. Primary activities of this project include developing supporting course materials and assessments, large-scale beta-testing of the full three-term sequence and assessing its effectiveness and impact at a variety of partner institutions, engaging in further dissemination of project findings and results, and building support for wider implementation of these ideas.

MathFest 2012 Student presentation award given to two St. Thomas students: Two CSUMS research students, **Jack Stangl**, **Aaron Rodriguez** have won the Andersen prize, presented at Mathfest by

BioSIGMAA for the best presentation in mathematical and computational biology. Their presentation was on "Characterization of Melanoma and Moles using Signature Curves, Invariant Histograms and Fractal Dimension. The research was directed by Prof. **Cheri Shakiban**. There is also a cash award that goes with the prize which the students will share. Aaron who graduated with a degree in Math in May will be a graduate student in Mathematics at Iowa State and Jack Stangl is a junior in Mechanical engineering. Please join me in congratulating them. *(submitted by Doug Dokken)*

University of Sioux Falls

The University of Sioux Falls is pleased to continue its Careers in Mathematics Series this fall, under the direction of **Joy Lind**. This semester's guest speakers will be Dr. **Sommer Gentry** on September 27 and Dr. **Carol Meyers** on November 6. Each event in the series, which is funded in connection with a grant from the National Science Foundation, features an address open to the general public at 7:00 pm in Zbornik Lecture Hall on the USF campus.

Naomi Tesar, **Billy Brockmueller**, and **Adam Heck** each completed research under the NIH funded BRIN (Biomedical Research Infrastructure Network) program during Summer 2012. Naomi's work (which led to a poster titled "Analysis of LongSAGE Tags Extracted from Wild-Type Mice) was performed under the direction of **Chad Birger**. Billy and Adam researched quantum tunneling effects in the brain under the direction of **Dennis Roark**. *(submitted by Jason Douma)*

Winona State University

The WSU Department hosted the first annual Midwest Undegraduate Data Analytics Competition in April. A total of 57 undergraduate students from seven universities throughout the Midwest utilized their data analytics skills to solve a problem for Fastenal® over an intense 24-hour period. The second competition is being planned for April. The department is currently searching for a new mathematics education faculty member, and we are continuing our Distinguished Lecture Series: **Annalisa Crannell** from Franklin and Marshall College will give presentations on Mathematics and Art this fall semester on October 8th and 9th. *(submitted by Aaron Wangberg)*

Section NExT

Designed for new college and university faculty in the mathematical sciences, Section NExT (New Experiences in Teaching) is a professional development program that addresses the full range of faculty responsibilities including teaching, scholarly activities, and service.

Each year, applications will be solicited for new MAA-NCS Section NExT fellows to serve for a two year term. We will accept applications from faculty who are within the first four years of beginning full-time employment with teaching responsibilities at the college or university level. The application consists of a short personal statement and a letter of support from the department chair, guaranteeing financial support for transportation, meals, and lodging at the fall and spring meetings of the North Central Section.

The MAA-NCS Section NExT will meet Friday, October 19, 2012 at conference sight with Marshall Hampton from University of Minnesota-Duluth. Details about the MAA-NCS Section NExT program and its fall meeting will be updated at http://sections.maa.org/northcen/secNext.html.

Conferences and Activities

34rd Annual Pi Mu Epsilon Conference

Plan to come with your students to the 34rd Annual Pi Mu Epsilon Conference April 12 and 13 at St. John's. Have your students submit titles and abstracts of talks to Kris Nairn (knairn@csbsju.edu), whom you can also contact for more information. Or go to our web site http://www.csbsju.edu/Mathematics/Pi-Conference.htm.

This spring, we are please to announce that our guest speaker is **Annalisa Crannell** from Franklin and Marshall College. Her talk on Friday will be "Math and Art: The Good, the Bad, and the Pretty" and her talk on Saturday will be "In the Shadow of Desargues". Please see our website for further details of the the talks: http://www.csbsju.edu/Mathematics/Pi-Conference.htm.

Center for Applied Mathematics Lectures (CAM Lectures) (University of St. Thomas)

Two evening CAM talks. Both talks are in the 3M Auditorium (OWS 150) at 7:30pm

1. Wednesday, October 17, 2012 -- "Illuminating Chaos - Art on Average" by Mike Field.

   Abstract: The mathematical idea of chaos has stimulated a range of artistic endeavors from Tom Stoppard's play Arcadia to the movie "The Butterfly Effect". We begin with a general (and gentle) introduction to chaos - what it is and is not and why these ideas might be significant in general mathematical education. We conclude with some visual illustrations of chaos and show how ideas from chaotic dynamics and symmetry can sometimes lead to striking images which in turn can illuminate the original mathematics.

2. Thursday, November 8, 2012 -- "An Introduction to Surface Tension (Or Why Raindrops are Spherical) by Andrew Bernoff.

   Abstract: A common misconception is that raindrops take the form of teardrops. In fact, they tend to be nearly spherical due to surface tension forces. This is an example of how at small scales the tendency of molecules to adhere to each other is the dominate effect driving a fluid's motion. In this talk we will explain how surface tension arises from intermolecular forces. We will also examine some examples of the behavior that can occur at small scales due to the balance between fluid-fluid and fluid-solid forces with applications as varied as understanding how detergents help clean clothes to the design of fuel tanks in zero gravity environments.

Future Section Meetings

Spring 2013	Gustavus Adolphus College	April 26-27
Fall 2013	South Dakota State University, Brookings	October 18-19
Spring 2014	St. Cloud State University	TBD

Information for Contributors

Submissions should be sent electronically (preferred method) to the shawn.chiappetta@usiouxfalls.edu or mailed to:

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