Allegheny Mountain Section of the Mathematical Association of America

Allegheny Mountain Newsletter

Spring Section Meeting April 8-9, 2011 at Clarion University

Entranced by snowflakes? Determined to learn more about determinants? Always wanted to go on a safari? Then the Spring 2011 Section meeting is the place to be. Our three featured speakers will be **Judy Holdener** of Kenyon College, **Danny Otero** of Xavier University and **Ivars Peterson**, Director of Publications and Communications, MAA.

Professor Holdener will open the conference with her presentation, "When Thue-Morse meets Koch," professor Otero will speak Saturday morning on "Determining the Determinant (1693-1812), the Early History of a Sophisticated Idea," and the conference will close with Ivars Peterson's talk, "Jungles of Randomness."

In addition, there will be the usual contributed paper sessions for faculty and student speakers, a pizza party on Friday night, and much more.

From the Governor: James Sellers, Penn State University

James Sellers of Penn State University, Section Governor

It's hard for me to imagine that I am writing this letter to you as I now serve my THIRD year as the section governor. Wow, time flies when you're having fun! Seriously, I am really excited to be writing you today. I would like to share with you some "old and new" thoughts in this letter.

First, I can't help but mention the wonderful MathFest meeting that took place in Pittsburgh back in August. What a fantastic meeting – I truly enjoyed the whole week. I personally thought the venue – the Omni William Penn Hotel – was perfect for the meeting. Admittedly, a conference center might have been more spacious (as was the case in San Francisco), but I really enjoyed the "old" style of the Omni. It was a truly meaningful week for me; from being a breakout session speaker with Project NExT early in the week, to attending the Board of Governors meeting on Wednesday, to serving as the emcee of the Opening Banquet (and celebrating my 20th wedding anniversary that day!), to organizing an invited paper session later in the week, attending three separate committee meetings, and speaking in the contributed paper session on First Year Seminar courses on Saturday, I had a busy and beneficial week. Speaking of "new," it was really gratifying to know that this year's MathFest set a new attendance record. Call me a proud Allegheny Mountain governor!

I mentioned the MAA Board of Governors meeting above; that fits in my "old" theme, given that this was my fifth such meeting! As always, I really enjoyed this time of service. Let me mention a couple of the items that I learned during that meeting. I was pleased to discover that our section has a strong "membership renewal" percentage; we are one of the "top 10" sections of the MAA in this category. Moreover, we have done a great job of converting to the MAA's new E-membership category – in fact, we are in the top three sections in terms of the percentage of members who have converted to this type of membership. (I personally have converted to E-membership, and I really encourage you to consider doing so as well. The benefits have proven to be very attractive to me and many MAA members throughout the section and the association.) More information about E-membership can be found here: http://www.maa.org/pubs/octnov09pg3.pdf

One other item that I learned about at the Board of Governors meeting was serving as a reviewer for MAA Reviews: http://mathdl.maa.org/mathDL/19/ There are many ways you can help with MAA Reviews, and one of the biggest is to serve as an actual reviewer for a new book. You might even be able to get a free copy of the book you are reviewing! If you are particularly interested in reading new mathematically-related books, and you would like to serve the broader mathematical community, please consider this opportunity! This falls into the category of a "new" idea (at least for me) for serving the MAA.

Let me encourage you to think about attending two upcoming conferences. In January, the Joint Mathematics Meetings will be held in New Orleans. I am excited to attend this conference; not only have I never attended a conference in New Orleans, but I am sure the weather there in January will be warmer (better?) than here in our section. The meeting promises to be great. Also, our section's next annual meeting will be held April 8-9 at Clarion University. Check out our section's website at http://www.maa.org/allegheny for information about the meeting. Here's one additional "old" (but important) comment I have made in the past — please consider attending and bring a colleague or some students from your institution. Also, encourage a student to give a student talk, or plan to give a talk yourself.

Let me close with one last exhortation – as I have asked in the past, I would again encourage you to consider nominating one of your colleagues for the section teaching, service, or mentor award. This is an important opportunity to serve! I know that it takes some time and commitment on your part, but it will be truly worthwhile (and much appreciated).

As always, if I can be of assistance to you in any way, please feel free to contact me at sellersj@math.psu.edu. I look forward to seeing you at a future meeting!

From the Chair: John Bukowski, Juniata College

John Bukowski of Juniata College, Section Chair

Greetings! I hope that everyone is having a good Fall semester and enjoying the cooler autumn weather. It was only a few months ago that we had the pleasure of enjoying MathFest 2010 in our very own Section. I thoroughly enjoyed the meeting – the location, the talks, our Section reception, and many other things. It was great to see so many colleagues and friends from the Section and from around the country. Kudos especially to our Governor, James Sellers, who did a great job as master of ceremonies for the Opening Banquet!

As always, I want to encourage you to nominate your colleagues for our three Section Awards – for teaching, service, and mentoring. We know that there are faculty out there who deserve these awards! We are trying to make a special push this year to get several good nominations for

each award, and we hope that you can help with that. Information on how to make a nomination can be found in this newsletter and at the section website.
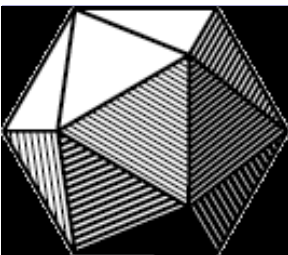
Our 2011 Spring Section Meeting is taking shape, and it looks like it will be another good one. The meeting will be held on April 8-9 at Clarion University. We have three great speakers already lined up: Judy Holdener (Kenyon College), Danny Otero (Xavier University), and Ivars Peterson (Director of Publications and Communications, MAA). Mark your calendars now, as there is sure to be something for everyone.

I encourage you all to become more involved in your MAA Section! You can do this in small ways – by serving on Section committees or being a room monitor at the Spring meeting. You can also do this in larger

ways – specifically, by running for one of the Section offices. Please contact me (bukowski@juniata.edu, 814-641-3591) or any of the officers if you want to get more involved.

Lastly, I want to remind everyone of the Section's website, http://sections.maa.org/allegheny/. Here you can find a great deal of information about the Section, its people, and its activities. Stop by to have a look.

Best wishes for a good end of the semester! I hope to see some of you at the Joint Meetings in New Orleans this January, and I hope to see all of you in Clarion this April!

Section NExT News: Tamara Lakins

Section NExT

The Fall 2010 Section NExT workshop was held at the University of Pittsburgh on September 18, 2010. It was one of the largest Section NExT meeting yet, with 36 participants! The morning session was a presentation on "Dealing with Administrative Issues" given by John Zimmerman from Washington and Jefferson College and Gary Stoudt from IUP. The afternoon session on "Online Cheating and Plagiarism" was led by Shelly Bouchat,

Slippery Rock University, who is also a national 2009 Project NExT Fellow.

The Spring 2011 Section NExT workshop will precede the Spring section meeting at Clarion University on April 8, 2011. Ivars Peterson, MAA Director of Publications and Communications, will present his workshop on "Communicating Mathematics." More information about the workshop will appear in the Spring section newsletter.

Questions about the Section NExT program should be directed to one of the Co-Coordinators: Tamara Lakins (tlakins@allegheny.edu), Beverly Michael (bkm@pitt.edu), or John Thompson (jwt01@pitt.edu).

Spring Section Meeting at UPJ a Success
John Thompson, University of Pittsburgh at Johnstown

The University of Pittsburgh at Johnstown hosted the section meeting on April 9th and 10th. We were pleased to have over 150 people in attendance, with 19 students and 18 faculty members giving talks. The guest speakers were Doug Ensley of Shippensburg University, Francis Su of Harvey Mudd College and Laura Taalman of James Madison University.

The meeting kicked off on Friday afternoon with Doug Ensley leading a Section NExT workshop, "Discrete Mathematics: Puzzles, Patterns, and Proof." The general meeting started with Doug Ensley presenting "A Recurring Theme in the Mathematics of Sports," in which he started with simple recursive models and built up to Markov chain analysis. Along the way he compared the predictions of his models

to real data from the world of sports. After the conference dinner was the student problem solving competition followed by the student talks and a pizza party.

Saturday morning began with the general business meeting. Francis Su then presented "Voting in Agreeable Societies," in which he examined when majorities exist, how the geometry of the political spectrum influences the outcome, what mathematics has to say about how people behave, and when mathematical objects have a social interpretation. The talk also featured research with undergraduates.

After the faculty gave their talks, the meeting concluded with Laura Taalman presenting "Sudoku: Questions, Variations and Research." In the talk, she addressed how Sudoku puzzles and their

variants are linked to mathematical problems involving combinatorics, Latin squares, magic squares, polyominos, symmetries, computer algorithms, the rook problem, graph colorings, and permutation group theory. She further discussed variations of Sudoku and the many open problems and new results in this new field of recreational mathematics.

Pitt-Johnstown was pleased to serve as the host campus for this meeting, and gratified that the meeting was such a success.

Student Submissions Wanted!

If your students have attended a conference or other mathematical event and would like to write an article that can be used in the newsletter, please have them send it to the editor at mbrodie@wju.edu .

Section Teaching Award: Call for Nominations

Nominations for the 2011 Allegheny Mountain Section Award for Distinguished College or University Teaching of Mathematics are now being solicited. Each year, the Allegheny Mountain Section of the MAA recognizes one of its own for Distinguished College or University Teaching of Mathematics. The awardee is honored at the spring meeting of the Section and is widely recognized and acknowledged within the Section. The awardee is also the official Section candidate for the national MAA Deborah and Franklin Tepper Haimo Awards for Distinguished College or University Teaching of Mathematics. Recent recipients of the award include:

2010: **Richard Marchand**, Slippery Rock University

2009: **George Bradley**, Duquesne University

2008: **Antonella Cupillari**, Penn State Erie—The Behrend College

2006: **James Sellers**, Penn State University

2005: **James Reynolds**, Clarion University

2004: **Michael Mays**, West Virginia University

Anyone is entitled to make a nomination, and we urge you to do so if you have someone eligible and qualified in your department. In this way, your candidate has an opportunity to be considered for the Section Award and, if so selected, also

for the national award. Even if not selected this year, it is a great honor for the person nominated, your department will have demonstrated its commitment to excellence in teaching, and the work done in preparing a nomination folder for your candidate is not wasted since your candidate can be nominated again in a future year. Self-nomination is not permitted.

Eligibility:

*) College or university teachers assigned at least half time during the academic year to teaching a mathematical science in a public or private college or university (from two-year college through teaching at the Ph.D. level) in the Allegheny Mountain Section of the MAA. Those on approved leave (sabbatical or other) during the academic year in which they are nominated qualify if they fulfilled the requirements in the previous year.

*) At least five years teaching experience in a mathematical science

*) Membership in the Mathematical Association of America

Guidelines for Nomination: The nominees should:

*) Be widely recognized as extraordinarily successful in their teaching(1)

*) Have teaching effectiveness that can be documented

*) Have had influence in their teaching beyond their own institutions (2)

*) Foster curiosity and generate excitement about mathematics in their students.

(1) "Teaching" is to be interpreted in its broadest sense, not necessarily limited to classroom teaching (it may include activities such as preparing students for mathematical competitions at the college level, for example, the Putnam Prize Competition or the Mathematical Contest in Modeling, or attracting students to become majors in a mathematical science or to become Ph.D. candidates).

(2) "Influence beyond their own institution" can take many forms, including demonstrated lasting impact on alumni, influence on the profession through curricular revisions in college mathematics teaching with national impact, influential or innovative books on the teaching of college mathematics, etc.

To nominate someone for this award, please see the full instructions for completing a nomination packet at www.math.psu.edu/sellersj/alleghenymtn/nom2.pdf . The Nomination Form can be found at www.math.psu.edu/sellersj/alleghenymtn/nomination.pdf . Please follow all instructions precisely to assure uniformity in the selection process both at the Section and national levels.

Please send three copies of the nomination packet to:

Dr. George Bradley
Department of Mathematics and Computer Science
440 College Hall
Duquesne University
Pittsburgh, PA 15282

Materials must be received no later than February 2, 2011.

The Section Selection Committee will choose the Section awardee and communicate its selection to the national MAA secretary no later than March 1 so that the national Committee can then make its selections.

We look forward to your participation in this exciting MAA venture of taking substantive action to honor extraordinarily successful teaching. We want to see such teaching recognized at all postsecondary school levels. We depend on you to help us identify those who merit such recognition.

2010 Teaching Award winner Rich Marchand of Slippery Rock University

Section Mentoring Award: Call for Nominations

2009 Mentoring Award winner James Sellers of Penn State University

Since the year 2000 the Allegheny Mountain Section of the MAA has awarded the Distinguished Faculty Mentor of Undergraduate Mathematics Students Award. Awardees have made significant contributions to the development of undergraduate students in mathematics as scholars. Recent recipients of the award include:

2009: **James Sellers**, Penn State University

2008: **Rich Marchand**, Slippery Rock University

2007: **Mike Berry**, West Virginia Wesleyan College

2006: **Eric Rawdon**, Duquesne University

2005: **Robert Vallin**, Slippery Rock University

2004: **Lyn Miller**, Slippery Rock University

2003: **Francisco Alarcón**, Indiana University of Pennsylvania

We are soliciting nominations for this award from now through <u>March 18, 2011</u>.

A nominee should have made significant contributions to the development of undergraduate students in mathematics as scholars. This includes, but is not limited to, encouraging student participation in MAA activities and advising students who make presentations at the Section meetings. Please send your nomination with a description of how the nominee meets the criteria to:

James Sellers
Department of Mathematics
Penn State University
104 McAllister Building
University Park, PA 16802

Section Service Award: Call for Nominations

2009 Service Award winner Tamara Lakins of Allegheny College

The criterion for the Annual Allegheny Mountain Section Service Award is a consistent record of excellence in service to the section over a period of time. The Section announces the winner of this award each year at its annual meeting in the spring. Recent recipients of this award include:

2009: **Tamara Lakins**, Allegheny College

2008: **Don Platte**, Mercyhurst College

2007: **Ben Freed**, Clarion University

2006: **Ron Harrell**, Allegheny College

2005: **Dave Wells**, Penn State New Kensington

2004: **George Bradley**, Duquesne University

In the context of this award, "service" is interpreted in a broad sense to include holding office, coordinating contests, organizing sessions, acting as a panelist, speaking at sessions, acting as the coordinating host for a meeting, or participating in any other activity that contributes to the well-being of the Section.

The Service Award Selection Committee consists of Hollie Buchanan (West Liberty University), Tamara Lakins (Allegheny College), and Pam Wovchko (West Virginia Wesleyan College).

Please send your nomination, with a description of how the nominee meets the criterion, **by March 18, 2011** to:

Tamara Lakins,
Department of Mathematics
Allegheny College
520 N. Main St.
Meadville, PA 16335,
tlakins@allegheny.edu

News from the Campuses

Duquesne University
submitted by **George Bradley**

Patrick Juola, Associate Professor of Computer Science, received the following grant: SDCI Data Improvement: Java Graphical Authorship Attribution Program (JGAAP). The award amount is $1,622,036, and the project is slated to run September 1, 2010 through August 31, 2013. Patrick also received the McAnulty College and Graduate School of Liberal Arts Award for Excellence in Scholarship.

Dr. **Eric Ruggieri** joined the faculty in August. Before coming to Duquesne University, Eric completed his doctoral work in Bayesian Statistics as a member of the Division of Applied Mathematics and Center for Computational Molecular Biology (CCMB) at Brown University. Prior to his time at Brown, Eric completed his undergraduate work at Providence College, where he majored in both Mathematics and Computer Science. Much of Eric's research has focused on developing Change Point models to analyze ice sheet dynamics on the Earth over the last 5 million years.

Dr. **George Bradley** received McAnulty College and Graduate School of Liberal Arts Award for Excellence in Teaching in the spring and in the fall President's Award for Excellence in Teaching.

Juniata College
submitted by **John Bukowski**

Kim Roth earned tenure and was promoted to Associate Professor this year. **John Bukowski** travelled to the Universidade Federal da Bahia in Salvador, Brasil, where he performed a solo piano recital and gave a talk at the Instituto de Matemática. **Jerry Kruse** was one of five faculty members nationwide selected as Teagle Teaching and Learning Scholars. The Teagle Foundation gave a grant to the Council for Aid to Education to fund a "Critical Thinking Tank," where the faculty scholars will research and promote ways to improve students' critical thinking and higher-order skills. In addition, the scholars will lead workshops on using performance tasks. This work is an extension of the work Jerry has done in Juniata's Quantitative Methods course, where he uses performance tasks to assess quantitative reasoning skills.

Penn State Greater Allegheny
submitted by **Zhibo Chen**

In Fall 2010 Dr. **Mbagne Faly Mbengue** joined the math faculty at Penn State University Greater Allegheny Camus as a tenure-track assistant professor of mathematics. His research area lies in applied mathematics. In August 2010, Professor **Zhibo Chen** gave a plenary talk "Forcing on Perfect Matchings" in the 2010 International Conference on Mathematical Chemistry in Xiamen, China.

Saint Vincent College
submitted by **Mike Botsko**

Dr. **Michael Botsko** has published the following problems and solutions in the fall of 2009 and the spring 2010: Q996 and A996, *Mathematics Magazine*, 82 No. 5, (2009), 383 and 390. Q1000 and A1000, *Mathematics Magazine*, 83 No. 2, (2010), 150 and 153. Q1002 and A1002, *Mathematics Magazine*, 83 No. 3, (2010), 227 and 233. Problem 1853, *Mathematics Magazine*, 83 No. 4, (2010), 303.

Dr. **Daniel Arcara** had his paper, "On the Independence of Generators of Tautological Rings," published in *Compos. Math.* 144 (2008), no. 6, 1497-1503.

Slippery Rock University
submitted by **Robert Vallin**

This year we have three faculty members going on sabbatical. Drs. **Lyn Miller** and **Jeff Forrest** are on leave this fall and Dr. **Rich Marchand** will be spending the spring working on his research. This, of course, means we have some temporary faculty. SRU is happy to welcome Dr. **Jackie Jensen**, Mr. **David Marchand**, and Mr. **Andy Kirby** to campus.

Many of our faculty members are Have Talk – Will Travel. Dr. Jensen presented "Greeting Card Mathematics" at Hood College in Frederick, MD and at Youngstown State University in Youngstown, OH. Dr. **Robert Vallin** talked on "Putting the 'Fun' in Functions," "Three Functions Every Undergraduate Should Know," and "Results for Slowly Oscillating Continuous Functions" at the Texas Section Meeting, PME Meeting at Miami University, and Summer Symposium in Real Analysis, respectively. Dr. **Shelly Bouchat** offered "The Linear Strand of Path Ideals of Trees" at the JMM and "Path Ideals of Rooted Trees" at the Allegheny Mountain Section Meeting. Also at the section meeting, Dr. Richard Marchand gave the talk "Boundary Stabilization of a Thermoelastic Beam." Dr. Marchand presented "Estimating Small-diameter Rocket Trajectories" at the 22nd International Conference on Technology in Collegiate Mathematics. **Bill Lindgren** spoke on "Flatland as Classical Greece" at the Canadian Society for the History and Philosophy of Science. Once again, Drs. Miller and Vallin were working hard behind the scenes at both the JMM and MathFest working on the MAA Undergraduate Students Paper/Poster Sessions, the MAA Graduate Student Paper/Poster Session, and Math Jeopardy.

Our students are just as busy as their faculty. Three undergraduate women (**Karissa King**, **Jessica Hoffman**, and **Krista Scott**)

News from the Campuses (continued)

went to the Nebraska Conference for Undergraduate-Women in Mathematics. **Samantha Corvino** presented her research poster "Using Schwarz Triangles to Create Branched Packings on the Sphere" at the JMM at which were five other SRU students. Twelve students went to the Conference on Undergraduate Research in Mathematics at Penn State with Ms. Corvino speaking on "Using Schwarz Triangles to Create Branched Packings on the Sphere" and **Ben Pearce** presenting "Deal or No Deal." **Dennis Pace** presented "Can Vampires Play Baseball?" at the Allegheny Mountain Section Meeting. Ms. Corvino and **Joe Garcia** both did summer research program. Ms. Corvino was at the Bios Program at the University of Pittsburgh and Mr. Garcia the REU at North Carolina State University.

Lastly, congratulations to Rich Marchand who earned both the award for Distinguished College or University Teaching from the Section and the President's Award for Excellence in Teaching from SRU.

University of Pittsburgh
submitted by **Beverly Michael**

Two professors received dis-tinguished awards from the University.

Tom Hales, Mellon Professor of Mathematics, was the winner of a 2010 Chancellor's Distinguished Research Award. Chancellor Nordenberg said in his letter to Hales that "Hales is universally recognized as having solved the oldest and most difficult open problem in discrete geometry, Kepler's Conjecture from 1611. The complexity of the proof for Kepler's Conjecture was such that it took a panel of 12 reviewers convened by the Annals of Mathematics several years to check its correctness. In addition, Hales settled the ancient Honeycomb Conjecture and supervised the solution to the challenging Dodecahedral Conjecture. "The proofs of these three conjectures are considered to be among the most significant break-throughs in discrete geometry in the 20th century."

Paul Gartside, associate professor of Mathematics, received the 2010 Tina and David Bellet Teaching Excellence Award, which recognizes outstanding and innovative undergraduate teaching in the School of Arts and Sciences. In addition Paul is the Graduate Director.

In other news, **Juan J. Man-**fredi, professor of mathematics and former associate dean for undergraduate studies in Pitt's School of Arts and Sciences, has been named Vice Provost for Undergraduate Studies and we welcome three new faculty members: **Kiumars Kaveh** (Algebra), **Jason DeBlois** (Topology), and **Michael Neilan** (Sci. Computing)

Washington and Jefferson College
submitted by **Roman Wong**

Dr. **Michael Woltermann** spent a spring 2010 sabbatical revisiting and revising "100 *Great Problems of Elementary Mathematics*" by Heinrich Dörrie from the original German edition "*Triumph der Mathematik.*" Updated translations and commentary can be found at http://www.washjeff.edu/users/MWoltermann/Dorrie/DorrieContents.htm.

Westminster College
submitted by **Pamela Richardson**

Westminster College is pleased to welcome Dr. **Jeffrey Boerner** as an assistant professor in the Mathematics and Computer Science department. Dr. Boerner joins us from the University of Iowa, where he completed his Ph.D. in topology in 2010. Westminster is also pleased to announce that Dr. **Natacha Fontes-Merz** received tenure and was promoted to associate professor this year. Dr. **Pamela Richardson** was an instructor at the Carleton College Summer Mathematics Program this summer and will be returning to teach Lie theory again in 2011. Finally, the Department is thrilled that **Richard Ligo**, a junior mathematics major, won an award at Mathfest for his presentation, "The Search for Extremal Graphs."

Wheeling Jesuit University
submitted by **Marc Brodie**

Onkar Pandit has retired after 32 years of dedicated service to WJU, and been granted the title of Professor Emeritus. He will be missed. **Kathleen Klein** is teaching full time for us this year as a visiting instructor of mathematics. **Marc Brodie** is currently a featured contributor to the Wolfram Demonstrations Project website: http://www.demonstrations.wolfram.com/

Don't see your institution listed?
Ask your MAA liaison to send your news to the editor at
mbrodie@wju.edu.