THE SEAWAY CURRENT

Newsletter of the Seaway Section of the Mathematical Association of America

Volume 36, Number 2 Spring, 2013

Congratulations to Bob Rogers, who was awarded a distinguished Service Award at the Joint Meetings in San Diego in January.

Our Spring meeting, April 19-20, will be hosted by SUNY Fredonia.

SUNY Fredonia is a four-year comprehensive, liberal arts college with about 5,500 undergraduate students, and about 300 graduate students. It started as a normal school, like so many of the SUNY colleges. SUNY Fredonia is well-known for bachelor's programs in education, music, and the theater arts. Most of their undergraduates come from upstate New York.

And now a few curious facts (with thanks to Wikipedia)! The term Freedonian was probably first used after the American Revolutionary war to describe inhabits of Independent America. It was proposed as a formal term for this purpose by Dr. Samuel Mitchill in Vol. VI, Part IV, of the Medical Repository, 1803 (here spelled Fredonian). What was to become Fredonia was, in the first part of the nineteenth century, called Canadaway, and was renamed Fredonia in 1820. The village rose to fame in the 1933 Marx Brothers movie, Duck soup, which dealt with the political travails of the tiny country of Freedonia, Wikipedia reports that when the film was first released, the village of Fredonia, complained about the possible negative impact of the film on the village. The Marx Brothers replied,"Change the name of your town. It is hurting our picture."[1] SUNY Fredonia has, since 1987, hosted an annual Marx Brothers Film festival.

Thank you SUNY Fredonia for hosting our meeting this Spring

Meeting Highlights

The banquet speaker is Chris Hill of St. Bonaventure University. The titles of his talk is *The abc Conjecture and Beyond*. This long-standing and extremely important number theoretic conjecture is quite easy to state, but difficult to prove. Shinichi Mochizuki of Kyoto University,

[1] Ed Note: I have long wanted an excuse to research this!

Japan, announced in August 2012 that he had proved the conjecture. The proof is 500 pages long and it will be some time before the proof is verified. Dr. Hill will talk about what the conjecture says, its significance in number theory, and, in very general terms, the new theory on which the proof is based.

Chandler Davis, University of Toronto will kick off the Saturday morning talks with a presentation titled: *Whether "Mathematics" is a Plural Noun*. Dr. Davis describes his talk as an attempt to understand the distinctions between Pure Mathematics, Applied Mathematics, and Computational Mathematics, by one who has always resisted making such distinctions.

Dr. Jennifer Quinn, currently second vice-chair of the MAA will give a presentation titled *Mathematics to DIE for: The Battle Between Counting and Matching*. Dr. Quinn will preside over a combinatorial competition between direct and alternating methods – you, the audience will be the judge of which strategy wins! Dr. Quinn, currently a professor at the University of Washington, Takoma, served as executive director of the Association of Women in Mathematics for two years. She is currently co-editor of the MAA students' magazine, Math Horizons. With Arthur Benjamin, she co-authored the book *Proofs That Really Count: The Art of Combinatorial Proof.*

The Gehman Lecture will be presented by Dr. Ted Cox of Syracuse University. The title is *Stochastic Models on Graphs*. Dr. Cox will give a glimpse of the rapidly growing area of research on large networks, exploring as an example the problem of determining the average time for information to spread in a network with given constraints on the interaction between nodes. In addition to his current interest in stochastic models on graphs, Dr. Cox has worked in several areas of probability, including random walks on graphs, percolation, spatial branching processes, and measure valued diffusion processes.

There is a Seaway Section Project NExT/ PFF workshop on Friday afternoon. Lunch will be followed by a workshop on coaching student presentations. After this there will be a question and answer session on the structure of the Seaway Section, and ways to participate in service for the section. For more information contact Matt Koetz, of Nazareth college, (mkoetz1 AT naz.edu).

On Saturday afternoon there will be a session of undergraduate student talks. Contact David Brown at Ithaca College for information about this (dabrown AT ithaca.edu).

In addition on Saturday afternoon there is a collection of talks on a wide range of interesting topics – and as well a round-table discussion for those interested in Inquiry Base Learning.

More details can be found a little further on in this newsletter, or on the meeting website

New opportunity at the Meeting Book Sale this year

There will be a sale of MAA books at the meeting in Fredonia but it will be different from in the past. Difficulties with state tax laws have led to a prohibition on buying books at a meeting and carrying them away. All sales now have to be through the MAA. This meeting something new has been added. For the period Sunday, April 14 through Saturday, April 27 (a week either side of our meeting) members can order books online through the MAA bookstore and receive a *35%* discount. The code is *SEAWYSP3.* All sales done online whether at the meeting or not will count towards the section's sales commission. We hope to have a laptop available at the book table during the meeting so that orders can be placed right there.

The Speakers:

Friday Evening – The Banquet speaker

Chris Hill, St. Bonaventure University
Title: The *abc* Conjecture and Beyond
Abstract. In August of 2012, Shinichi Mochizuki of Kyoto University, Japan, announced that he had proven the *abc* Conjecture. The *abc* Conjecture is enormously important in number theory: if the conjecture were true, it would imply the truth of numerous other conjectures and provide new proofs of several known results. It will take some time for experts to determine whether Mochizuki's proof is correct—it spans over 500 pages and is part a new mathematical theory that he invented. Although Mochizuki's purported proof is extremely complicated, the statement of the *abc* Conjecture is relatively simple. We will discuss what the *abc* Conjecture says and what it means, why the conjecture is so important, and the nature (in very general terms) of Mochizuki's new theory.

Bio: *Chris Hill is an assistant professor of mathematics at St. Bonaventure University. He is deeply interested in community outreach, where "community" includes his own university. At SBU, he organizes a variety of problem-solving activities, heads the development of a quantitative literacy program, organizes the university's largest annual celebration of student excellence, and runs Pi Day and Integral Day. Beyond his school, he organizes workshops for students ranging in grades from first through twelfth in which geometry and art are explored using the math construction kit Zometool. He received his Bachelor of Science degree from Colorado State University and his Ph.D. from the University of Illinois at Urbana-Champaign.*

Saturday morning Invited Speakers:

Chandler Davis, University of Toronto
Title: Whether "Mathematics" is a Plural Noun.
Abstract: One speaks of Pure and Applied Mathematics as if they were two sciences. Some say that Computational Mathematics is its own distinct entity. This is an attempt to understand such distinctions, by

someone who has always resisted making them.
Bio: *Chandler Davis did his thesis on algebraic logic, but subsequently worked mostly on structure of matrices and operators, and the inequalities needed in numerical analysis. He has been a professor at the University of Toronto for fifty years-- twenty of those as Emeritus.*

Jennifer Quinn, University of Washington, Tacoma
Title: Mathematics to DIE for: The Battle Between Counting and Matching
Abstract: Positive sums count. Alternating sums match. So which is "easier" to consider mathematically? From the analysis of infinite series, we know that if a positive sum converges, then its alternating sum must also converge but the converse is not true. From linear algebra, we know that the permanent of an $n \times n$ matrix is usually hard to calculate, whereas its alternating sum, the determinant, can be computed efficiently and it has many nice theoretical properties. This talk is one part performance art and three parts combinatorics. The audience will judge a combinatorial competition between the competing techniques. Be prepared to explore a variety of positive and alternating sums involving binomial coefficients, Fibonacci numbers, and other beautiful combinatorial quantities. How are the terms in each sum concretely interpreted? What is being counted? What is being matched? Do alternating sums always give simpler results? You decide.

Bio: *My research focuses on combinatorics, graph theory, and combinatorial matrix theory. I like to count---by that I mean finding concrete counting contexts that lead to clever combinatorial proofs of algebraic identities. Just prior to starting at UWT, I served as Executive Director of the Association for Women in Mathematics.Before that, I taught at Occidental College in Los Angeles for twelve years where I achieved the rank of Professor and served as Department Chair. I have co-authored dozens of research articles but am most proud of my book Proofs That Really Count: The Art of Combinatorial Proof co-authored with Arthur Benjamin. It received the 2006 Beckenbach Book Prize from the Mathematical Association of America for outstanding exposition. Currently I co-edit Math Horizons, a magazine for undergraduate math enthusiasts. At UWT, I teach the Precalculus, Calculus I, II, & III, Matrix Algebra, and anything else that we develop along the way.*

Gehman Lecture:

J. Theodore Cox, Syracuse University
Title*:* Stochastic models on graphs
Abstract: In recent years there has been a great deal of research effort devoted to modeling networked-based phenomena. Models have been proposed in many disciplines (physics, computer science, psychology and sociology, ecology, etc.) to help understand certain types of phenomena. For example, consider a large network or graph with agents located at the vertices of the graph, each possessing "information" which gets updated in some way whenever two neighboring agents "meet." Given the details of the graph and interaction mechanism, can one say how long it will take, on average, for information to spread throughout the network starting from a single agent? I will give a glimpse of this rapidly growing area.

Bio: *Ted Cox is Professor of Mathematics at Syracuse University, where he has been since arriving in 1979. He received his PhD from Cornell University in 1976, working in probability theory under the direction of Frank Spitzer. He has worked in a number of related areas within probability, including random walks, interacting particle systems, percolation, spatial branching processes, and measure valued diffusion processes. He is currently very interested in stochastic models on graphs.*

The full meeting program may be found on the meeting website, http://people.rit.edu/maacway/Meetings/PDF/schedule_sp13.pdf

REPORTS

1. Seaway Section Governor's Report - Spring 2013 - Gary Towsley.

I attended the Board of Governor's meeting on January 8, 2013 in San Diego. As usual much of the meeting was taken up with fairly routine business. For example, at each meeting the Board of Governors votes to accept as new members everyone who has applied for membership since the last meeting. There were a few items of more general interest to MAA members.

The Board approved a new dues structure for MAA membership. This new structure reduces the number of membership categories to five: Member, Member Plus, K-12 Teacher, Student, and Departmental. I have included the Proposed Membership Dues 2014 document that was approved. Most members will see a small reduction in their annual dues from $199 to $169 per year and will receive electronic versions of The Monthly, The College Math Journal, Mathematics Magazine, and Math Horizons at no cost. See the attached document for more detail.

The Board approved a recommendation from the Strategic Planning Working Group on Books. The recommendations deal with increased marketing efforts for MAA books, the hiring of an acquisitions editor to seek out new books with potential for strong sales, and hiring a professional editor for books that might have mass market appeal.

Beginning in 2015 the MAA Meritorious Service Awards will be presented at MathFest rather than at the JMM.

There will be an increased effort to expand participation in the American Math Competition. The competition is a major fund raiser for the Association.

Finally, much work was either completed or begun on the project to regularize the various writing awards given by the MAA each year. At present the monetary awards for different prizes vary widely.

Respectfully submitted by Gary Towsley, Governor of the Seaway Section, Spring 2013.

2. Treasurer's Report – Spring 2013 – Gary Towsley

1. Balance as of 9/1/2012	$13,089.07
2. Spring Meeting at Elmira College	
a) Meeting Expenses	$6,280.56
b) Meeting Receipts	$6,823.50
c) Net	$542.94
3. MAA – Check for Book Sale Receipts	($36.50)
4. Stamps and Envelopes	($10.02)
5. MAA – Proceeds of Book Sale	$18.50
6. Balance as of 3/22/2013	$13,603.99

3. **Minutes of the Business Meeting, Elmira College, October 20, 2012**
- Gary Raduns

The Business Meeting was called to order at 10:37 a.m. with approximately 20 in attendance.

Governor's Report (Gary Towsley)

Gary Towsley reported on the Governor's Meeting held in August in Madison, WI. The Section's request to add an at-large member to the Executive Committee was approved by the Board of Governors. Two topics dominated discussions at the meeting: double-blind referee process for MAA publications and operating deficits.

Treasurer's Report (Gary Towsley)

Section Treasurer Gary Towsley gave a brief report highlighting a balance of approximately $12,400 prior to the April 2012 meeting and approximately $13,000 prior to this meeting.

First Vice-Chair's Report (Charles Ragozzine)

Charlie solicited suggestions for speakers from the membership present.

Nominating Committee (John Maceli)

The Nominating Committee presented Ryan Gantner for election to First Vice-Chair. Ryan was elected on voice vote without dissent. There is currently a vacancy for Second Vice-Chair (representing two-year colleges).

Chair's Report (Hossein Shahmohamad)

Hossein gave a quick review of the proceeding of the Executive Committee meeting. Specific highlights include:

- Future venues for Section meetings: Fredonia (April 2013), Potsdam (October 2013), and Buffalo State College (April 2014).
- Introduced Section letterhead
- Speakers already arranged for the April meeting Chandler Davis, Jennifer Quinn (Association Visitor), and Ted Cox.
- The position of Public Information Officer in the Extended Executive Committee was eliminated.

Section notes:

1. St. Bonaventure University:

Harry Sedinger is retiring from St. Bonaventure University in May after thirty-two-and-a-half years on our faculty.

Sally Kwiatkowski has been appointed as a Lecturer in Mathematics starting this coming fall, charged with overseeing our developmental math program.

As of June 1, **Maureen Cox** will again be assuming the duties of Department Chair.

2. SUNY Fredonia

Keary Howard will receive the 2013 President's Award for Excellence for an instructional faculty member. The criteria for this award include effectiveness in teaching, initiative and innovation, continued personal growth and exemplifying the spirit of Fredonia.

Robert Rogers is the President-Elect of AMTNYS (Association of Mathematics Teachers of New York State).

Fall Meeting:

Fall 2013: October 18-19, 2013, at SUNY Potsdam

Some Important Links

Seaway Section Website: http://people.rit.edu/maacway/

Governance: http://people.rit.edu/maacway/governance.html

The Seaway Current

The Seaway Current is published twice per year by the Seaway Section of the Mathematical Association of America for the benefit of its members. Its pages are open to all members of the MAA and, by invitation to others, for the exchange of information and opinion. Contributed announcements, articles, and editorials are welcome and should be sent to the editor.

Material may be submitted on paper, by e-mail or on CD. Presently, this newsletter is produced using Microsoft Word, which can import plain text files or files produced by most standard word-processing software.

Opinions expressed in this newsletter are those of the editor or of individual contributors and do not necessarily represent the views of the MAA or of the Seaway Section.

Editor
Margaret Morrow
Dept. of Mathematics
SUNY Plattsburgh
Tel: 518-564-4129
E-mail: morrowml “at” plattburgh.edu