

# THE SEAWAY CURRENT

Newsletter of the Seaway Section of the Mathematical Association of America

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## **Saint Bonaventure University will host the Fall Meeting of the Seaway Section October 14, 15**

This fall's meeting of the Seaway Section will be held at Saint Bonaventure University. Friday night's Banquet will feature Jonathon Hoyle of Eastman Kodak whose presentation is titled "Forensic Mathematics and the World Trade Center Project." Saturday morning's speakers are Dror Bar-Natan of the University of Toronto, Ivars Peterson from the MAA, and Tom Pfaff of Ithaca College, this year's Randolph lecturer. As always the climax of Saturday morning will be a scintillating business meeting you will all want to attend.

### **The Speakers:**

#### **Friday Evening – The Banquet**

#### **Jonathon Boyle, Eastman Kodak**

*"Forensic Mathematics and the World Trade Center Project"*

**Abstract:** Ten years ago, 2,753 people were killed from the attacks on the World Trade Center on 9/11. The victim identification process was the largest and most complex forensic project in history. This presentation will describe the events of 9/11 from a forensic perspective and detail the mathematics of DNA victim identification. These include DNA Fingerprinting, Kinship Analysis and other genetic applications of Forensic Mathematics.



## Saturday Morning

### 1. Dror Bar-Natan, University of Toronto “The Hardest Math I’ve ever Really Used”

**Abstract:** What's the hardest math I've ever used in real life? Me, myself, directly - not by using a cellphone or a GPS device that somebody else designed? And in "real life" - not while studying or teaching mathematics?

I use addition and subtraction daily, adding up bills or calculating change. I use percentages often, though mostly it is just "add 15 percents". I seldom use multiplication and division: when I buy in bulk, or when I need to know how many tiles I need to replace my kitchen floor. I've used powers twice in my life, doing calculations related to mortgages. I've used a tiny bit of geometry and algebra for a tiny bit of non-math-related computer graphics I've played with. And for a long time, that was all. In my talk I will tell you how recently a math topic discovered only in the 1800s made a brief and modest appearance in my non-mathematical life. There are many books devoted to that topic and a lot of active research. Yet for all I know, nobody ever

needed the actual formulas for such a simple reason before.

Hence we'll talk about the motion of movie cameras, and the fastest way to go from A to B subject to driving speed limits that depend on the locale, and the "happy segway principle" which is at the heart of the *least action principle* which in itself is at the heart of all of modern physics, and finally, about that funny discovery of Janos Bolyai's and Nikolai Ivanovich Lobachevsky's, that the famed *axiom of parallels* of the ancient Greeks need not actually be true.



## 2. Ivars Peterson, National MAA

*“Pancake Sorting, Prefix Reversals, and DNA Rearrangements”*

**Abstract:** The seemingly simple problem of sorting a stack of differently sized pancakes has become a staple of theoretical computer science and led to insights into the evolution of species. First proposed many years ago in *The American Mathematical Monthly*, the problem attracted the attention of noted mathematicians and computer scientists. It now plays an important role in the realm of molecular biology for making sense of DNA rearrangements.



## 3. Tom Pfaff, Ithaca College – The Randolph Lecture

*“Sustain This! Making Math Matter “*

**Abstract:** The world’s population is projected to exceed 9 billion people by 2050, approximately 50% greater than in 2000. We are already facing challenges related to climate change, peak oil, and general ecosystem degradation. A main finding of the Millennium Ecosystem Assessment is that the ability of the planet’s ecosystems to sustain future generations can no longer be taken for granted. Education is key to helping students understand the challenges they will face. This talk will provide examples of how sustainability issues can be covered in mathematics classes as part of the typical curriculum from Calculus through research project for seniors. While introducing sustainability topics and making math matter to students we may also be increasing their engagement and understanding of the material.



# The SEAWAY SECTION of the MATHEMATICAL ASSOCIATION OF AMERICA

**Fall 2011 Meeting –Saint Bonaventure University**

**October 14-15**

**Program** - The Current will be updated to include the program when it is available.

## Speakers Biographies

### 1. Jonathon Hoyle

In 2001, Jonathan Hoyle was Senior Software Engineer and Mathematician at Gene Codes Forensics and was responsible for implementing the mathematical algorithms used in M-FISys, the forensic software written specifically for the World Trade Center project. Jonathan received his Bachelor of Science degree at the University of Delaware and his graduate work at the University of Michigan in Ann Arbor. Today he is a Macintosh Software Architect at Eastman Kodak in Rochester, NY.

### 2. Dror Bar-Natan

I believe math is too deep. Rather than making it deeper, a better use of my time would be to make some deep ends easier and more accessible. I believe math is too abstract, or at least appears to be too abstract, for much of what may be computed hardly ever is. Thus, whenever I can, I code. Yet I have sinned a few times and written on deep math that was not accompanied with programs. I usually work on knot theory and its surprising relationship with algebra, geometry and quantum field theory. I got my Ph.D. at Princeton, did time at Harvard, Hebrew U., Berkeley and MSRI, and I now work at the University of Toronto. Practically everything I've ever done (including even this paragraph) can be found somewhere on my website, starting at <http://www.math.toronto.edu/~drorbn/>.

### 3. Ivars Peterson

Ivars Peterson is Director of Publications and Communications at the Mathematical Association of America <http://www.maa.org/> in Washington, D.C. As an award-winning mathematics writer, he previously worked at *Science News* for more than 25 years and served as editor of *Science News Online* and *Science News for Kids*. His books include *The Mathematical Tourist*, *Islands of Truth*, *Newton's Clock*, *The Jungles of Randomness*, and *Fragments of Infinity: A Kaleidoscope of Math and Art*.

### 4. Tom Pfaff

Tom Pfaff is an Associate Professor of Mathematics at Ithaca College. His main teaching interest is incorporating sustainability issues into mathematics courses. Pfaff is the lead-PI of the Multidisciplinary Sustainability Education Project, and he has given several presentations on sustainability in the curriculum. He also maintains a page of sustainability curriculum materials for Mathematics at <http://www.ithaca.edu/tpfaff/sustainability.htm>.

# REPORTS

## 1. Treasurer's Report Gary Towsley September 29, 2011

Treasurer's Report – Seaway Section of the Mathematical Association of America  
Fall 2011

Balance as of 03/16/2011	\$11,508.00
Spring 2011 Meeting Costs	
1. Lodging, Honoraria etc. for Saturday Speakers	\$340.74
2. General Meeting Expenses	\$7,167.48
Total	\$7,508.22
Fall Meeting Income (Registration etc.)	\$6,144.59
Fall Meeting Total	(\$1,363.63)
Balance after Fall Meeting 07/18/2011	\$10,144.37
Deposits:	
Subvention 07/29/2011	\$1,411.00
Balance as of 09/29/2011	\$11,555.37

## 2. Minutes of the Business Meeting – Spring 2011 – Gary Raduns

Minutes—Seaway Section Business Meeting  
April 2, 2011  
Nazareth College, Rochester, NY

The meeting was called to order at 10:42 am with approximately 20 members of the Section present.

Minutes of the previous Business Meeting (October 2010) were approved as distributed in the Seaway Current.

### Treasurer's Report:

The treasurer gave highlights of the report published in the Seaway Current including a small “profit” at the October meeting and a balance of \$10433. He also mentioned the lack of a book sale at this meeting. The Association is making changes in the process for conducting book sales due to state sales tax liability.

### Governor's Report

Cheri Boyd reported on several items from the latest Governor's Meeting:

Concerns about membership. Approximately 17% of the Association's membership has taken the electronic membership option. This raises concern about the impact on membership if an

electronic library membership is made available. What does membership in the MAA mean to individual members beyond access to the MAA journals?

The Association is undergoing committee and council restructuring following changes in the by-laws adopted in August 2010.

The MAA website is being updated and re-designed. The MAA has also taken on hosting Webwork.

Executive Director, Tina Straley, is retiring as is the Association's treasurer.

Program Chair:

The program chair announced the Fall Meeting, October 14-15, 2011 will be held at St. Bonaventure University and will feature invited addresses by Ivars Peterson, Dror Bar-Natan, and the Randolph lecturer still to be named.

Bill Dunham will speak at the April 2012 meeting to be held at Hamilton College.

The chair expressed his thanks to Charlie Ragozzine (Program Chair) and to Cheri Boyd and her local organizing team, and to Ryan Ganter and the student program committee.

The Nominations Committee presented Gary Raduns for re-election to Secretary of the Section. Gary Raduns was re-elected on voice vote.

A resolution endorsed by the Executive Committee was presented to the membership on behalf of the Educational Policies Committee.

**Resolved:** *That the Seaway Section of the Mathematical Association of America opposes the awarding of college credit for courses taken in high school that are below the level of precalculus. In particular, high school students in New York State should not receive college credit for courses in the standard high school mathematics curriculum (Integrated Algebra, Geometry, Algebra 2/Trigonometry), nor for courses such as business math. In general, a high school mathematics course should be considered for dual enrollment college credit only if it has Algebra 2/Trigonometry as a prerequisite.*

*Further, be it resolved that the Seaway Section affirms resolutions adopted by the Board of Governors of the Mathematical Association of America that university mathematics departments have oversight of dual enrollment courses in terms of syllabi, textbooks, examinations, and choice of instructors, to the same degree that such oversight exists for mathematics courses taught at the university by adjunct faculty."*

The matter was referred back to the Educational Policies Committee to consider incorporating Elementary Statistics (which may or may not have Algebra 2/Trigonometry as a pre-requisite) and to verify agreement with the resolution of the Board of Governors.

An Amendment to the By-Laws of the Seaway Section

The Executive Committee presented to the membership for a vote a proposed amendment to add one at-large member to the Executive Committee.

The by-laws would be amended as follows:

### Article III

#### Officers and Executive Committee

1. The officers of the Seaway Section shall be the Chair, the First Vice-Chair, the Second Vice-Chair, the Secretary, the Treasurer, the Governor, and the Immediate Past-Chair or Chair-Elect.
2. The Executive Committee of the Seaway Section shall consist of the officers of the section *and one at-large member elected at the Spring meeting of the section in even years.*

During the preceding Executive Committee meeting, the Executive committee amended the proposal to limit the at-large member to two consecutive terms in that office. The amended proposal was approved on voice vote without dissent.

The meeting adjourned at 11:17 am.

### 3. Minutes of the Executive Committee Meeting – Friday, April 1, 2011

Minutes—Seaway Section Executive Committee Meeting

April 1, 2011

Golisano Academic Center

Nazareth College, Rochester, NY

The meeting was called to order at 3:15 pm with Hossein Shahmohamad, Charles Ragozzine, John Maceli, Gary Towsley, Gary Raduns, and Robert Rogers present.

The minutes of the Fall 2011 Executive Committee meeting were approved by consensus.

Chair's Report (Robert Rogers):

The chair updated the committee on the proposal to add an "at large" member to the Executive Committee. The chair will research the procedure for ratification. The Executive Committee recommended that the proposal as published be amended to limit the at-large member to two two-year terms.

The chair raised the question of whether we want to promote electronic membership in the

MAA. This led to an extended discussion of the Section's role in promoting membership, the benefit to the Section for promoting membership, and the benefits to members.

#### First-Vice Chair's Report (Charlie Rogozzine)

The first vice chair announced that Ivars Peterson will be the MAA officer speaking at the Fall meeting, and Dror Br-Natan will also be giving an invited lecture at the Fall meeting. There will also be a Randolph lecturer yet to be determined.

Bill Dunham has already been secured as an invited speaker for the April 2012 meeting at Hamilton College.

#### Treasurer's Report

The treasurer's report was reviewed by the Executive Committee.

#### Old Business

The proposal to amend the by-laws of the Seaway Section to add an at-large member to the Executive Committee will be presented to the membership for a vote at the Business Meeting.

The Executive Committee endorsed the Educational Policies Committee's statement on college credit for courses offered in high school. The proposal, below, will be presented to the membership for a vote at the Business meeting.

Upon approval, the Secretary will refer the policy to the Educational Policy Committee for dissemination with ANTNYS, NYSED, and the MAA suggested. Rick Cleary had joined by this point and suggested an article for FOCUS.

Gary L Raduns, Jr.  
Seaway Section Secretary

## 4. Minutes of the Extended Executive Committee Meeting – Friday, April 1, 2011 Minutes—Seaway Section Extended Executive Committee

April 1, 2011  
Golisano Academic Center  
Nazareth College, Rochester, NY

The meeting commenced at 5:10 pm.

Committee Reports. Brief reports were given by or on behalf of these committees-- a brief note follows when appropriate.

- a. Executive Committee. Bob highlighted discussions from the preceding executive committee meeting.
- b. Program Committee.



c. Student Program Committee: 18 student talks scheduled for this meeting. Although response has been low, they will continue to offer a poster session.

d. Randolph Lecture Committee: Patti Frazier Lock is chair. The committee is seeking a speaker for the fall meeting. Rebecca McBride, daughter of John Randolph would like to speak about her father's experience. The consensus was that it would be good to have her speak in introduction of the Randolph lecturer on some occasion. Discussion followed to document the history of each of the named lectures (Gehman, Randolph) and the Stephens Distinguished Teaching Award. In this context, there was also discussion of appropriate tribute to Sandi Segal.

e. Gehman Lecture Committee. Alan Greenleaf is speaking this week as our Gehman lecturer.

f. Educational Policies Committee. The Executive Committee has endorsed the EPC statement regarding college credit for courses offered at high schools. The statement will be presented for a vote at the Business Meeting.

g. Distinguished Teaching Award Committee. No nominations were received this year. It was suggested that Olympia Nicodemi, chair of the DTA Committee prepare a short article for the fall Seaway Current.

h. Nominations Committee. The term of the Secretary of the Section expires at the April meeting.

i. Seaway Current Editor. Two articles were suggested—a tribute to Sandy Segal, and a promotion for DTA nominations.

j. Seaway NExT. The committee has added one new member, but is “dwindling.” Approximately 20 were present for today's workshop.

k. Public Relations.

l. Webmaster. Information is needed regarding student activities, Section awards, and NExT/PFF.

New Business:

Terms are expiring for several committee members: Raluca Felea will be asked to continue on the Program Committee; Jonathan Cox, Student Program Committee; Jim Matthews, Educational Policies Committee; John Maceli, Gehman Lecture Committee; Jim Conklin,

Distinguished Teaching Award Committee ; John Maceli will be replaced by Margaret Morrow on the Nominations Committee and LC Kappe's term expires.

Adjourned at 6:03.

Respectfully submitted,

Gary Raduns

## **Future Meetings**

Spring 2012 – April 13-14 at Hamilton College

Fall 2012 – October 19-20 at Elmira College

## **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.