

NORTHEASTERN SECTION



NEWSLETTER

FALL 2003

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**NORTHEASTERN SECTION
MATHEMATICAL ASSOCIATION OF AMERICA
FUTURE SECTION MEETINGS**

November 21-22, 2003	Wellesley College, Wellesley, MA
Program Committee	Frank Ford, Providence College
Local Arrangements	Ann Trenk, Wellesley College

June 3-4, 2004	Roger Williams College, Bristol, RI
Program Committee	
Local Arrangements	Joel Silverberg, Roger Williams College Bruce Burdick, Roger Williams College Frank Ford, Providence College

November, 2004	(to be determined)
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June, 2005 (date to be determined)	Bates College, Lewiston, ME
Local Arrangements	Bonnie Shulman, Bates College

OTHER ACTIVITIES

Short Course:	(to be announced)
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June 2, 2004

Roger Williams College, Bristol, RI

Short Course Committee:	Will Stout (stout@salve.edu) Dennis Luciano (dluciano@wnec.edu) Paul Estes (ple@mail.plymouth.edu)
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Dinner Meetings

Coordinator:	Lucy Kimball (lkimball@LNMTA.bentley.edu)
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Awards:	NES/MAA Award for Distinguished Teaching (Nominations to Sarah Mabrouk)
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Web page:	access it via http://www.maa.org or directly with http://www.southernct.edu/organizations/nesmaa/
Webmaster:	Ross Gingrich, Southern Connecticut State University (gingrichr1@southernct.edu)

Section Project Next:	Next Meeting at Spring Meeting.
Coordinator:	Lisa Humphreys, Rhode Island College (lhumphreys@ric.edu)

Message from the Chair.....Ockle Johnson

As I finish my tenure as chair, it is an opportune time to look forward and look back. But first for the present: we hope that you will join us for the fall section meeting—and bring your students too! Ann Trenk will be our gracious host at Wellesley College and Frank Ford and his committee have put together an interesting program. On Friday morning and afternoon before the section meeting, the second year of Section NExT will kick off with an excellent program thanks to Lisa Humphreys. All new or fairly new faculty are encouraged to join us. (Details in the Newsletter.)

Our Section is blessed with many excellent teachers. This year again one of our section members was recognized for his outstanding teaching. We congratulate Tom Garrity of Williams College, who is one of this year's recipients of the national Haimo Award for Distinguished Teaching of College and University Mathematics. (A short profile is contained in the Newsletter.)

Looking back we have had many successful events these last couple years, thanks to the contributions of many section members. In particular I want to recognize those who have hosted meetings and/or chaired program committees: Frank Morgan, Sarah Mabrouk, Freda Bennett, Dick Pelosi, Ann Trenk and Frank Ford; and also those who organize the paper sessions: Lisa Humphreys, Mike Cullinane, Phil Hotchkiss, Chris Aubuchon and Tommy Ratliff. Thanks as well to Lucy Kimball who oversees our dinner meeting program and those who have hosted: Tom Cecil, Frank Ford, Barry Schiller, Jason Moliterno, and Larry Braden. I especially want to acknowledge Lisa Humphreys who deserves almost all of the credit for the Section NExT program we inaugurated last fall. Finally thanks to those who have organized, hosted or taught a short course: Dennis Luciano, Will Stout, Paul Estes, Cathy Frey, Rob Poodiak, Gerard LaVarnway, Jim Hefferon, Rick Cleary and Robin Lock. (Despite the great programs, attendance has been relatively light and so this spring we will experiment with a one-day mini-course preceding the spring Section meeting.)

I would especially like to thank those who have guided the section during these years, starting with the Executive Committee. Some have finished their terms, Ed Sandifer, our past chair, and Donna Beers, who represented the section with style and grace as governor. Others continue on: Ann Kizanis, our secretary/treasurer, Kathy Bavelas, our two-year college representative, Laura Kelleher, our new governor, and Frank Ford, who is our Newsletter Editor and so much more. Thanks also to our webmaster, Ross Gingrich, for keeping news and information accessible on the web. Finally thanks to the "sages" of the section, Dennis Luciano, Frank Battles and Laura Kelleher, who have generously offered guidance, support, and perspective.

For years as a program chair, giving talks and organizing sessions at national meetings, and most strikingly last fall at the Framingham meeting, we have witnessed Sarah Mabrouk's tireless energy, exciting creativity, and dogged

determination. With Sarah as our new chair, and with so many to assist, the section is in very capable hands.

Message from the Governor..... Laura Kelleher

I am grateful for the opportunity to represent the Northeastern Section at the meetings of the Board of Governors and I am sure that all of you will join me in extending sincere thanks to Donna Beers of Simmons College for her service as Governor of NES/MAA for 2000-2003. Please make plans to participate in the 2004 Mathfest in Providence as the Northeastern Section plays host to all of the MAA next summer.

Several members of the Northeastern Section merit special mention. Congratulations to Tom Garrity of Williams College, one of the recipients of the 2004 Haimo Teaching Award. A hearty well done to Jim Tattersall of Providence College, MAA Associate Secretary, for all of his hard work organizing the national MAA meetings. Best wishes to Ed Sandifer of Western Connecticut State University as he begins a column on Euler in *Focus*.

At the Governor's Meeting in Boulder, Ron Graham, MAA President, reported that membership in the MAA is holding steady. It was announced that the option of electronic voting for National MAA offices, available for the first time last Spring, was well received and will be continued. In addition, it is expected that MAA memberships will be renewable online in the near future.

The MAA Executive Committee approved the formation of a new Special Interest Group (SIGMAA) in Mathematics Instruction Using the Web. This new group joins the SIGMAAs in Philosophy of Mathematics, Environmental Mathematics, Research in Undergraduate Mathematics Education, Statistics Education, History of Mathematics, and Business, Industry and Government. If you do not already belong to a SIGMAA, you may wish to consider joining one. Other MAA programs that may be of interest to you include project PREP, MAA's Professional Enhancement Program and PMET, the program for Preparing Mathematicians for Educating Teachers. The first MAA International Study Tour to Greece in 2003 was a great success. The second will be a trip to England in 2004, visiting London, Cambridge and Oxford. Consider participating in this program for an enjoyable and rewarding travel and mathematical experience. These trips can sometimes afford opportunities not available with individual travel. Look online at www.maa.org for additional information on all of these programs.

The Halmos' generous donation to the MAA, reported in the last Governor's Message, will be used to turn the Carriage House at MAA Headquarters into a Mathematical Conference Center. This process may be a lengthy one since the MAA will have to satisfy all building code regulations as well as meet criteria set by the Historical Society for Dupont Circle and for the entire DC area. The next time you are in Washington DC be sure to visit the MAA Headquarters to check on the progress of this new venture.

In January 2003, the MAA established the Henry L. Alder Award for Distinguished Teaching by a Beginning College or University Mathematics Faculty Member. You might consider nominating one of your colleagues for this national award. For more information see http://www.maa.org/awards/alder_award.html.

Thanks to all of the MAA Liaisons in the Northeastern Section for coordinating information from the National MAA to individual institutions. If your institution does not have a liaison, please be sure to let me know. Another opportunity for service to the mathematical community is available through appointment to one of MAA's committees. Descriptions of these committees can be found online. If you are interested in serving on one, send me a short description of your qualifications for a particular committee.

MAA future meetings are planned as follows:

Winter 2004	Phoenix AZ	Wednesday-Saturday, January 7-10
Summer 2004	Providence RI	Thursday-Saturday, August 12-14
Winter 2005	Atlanta GA	Wednesday-Saturday, January 5-8
Summer 2005	Albuquerque NM	Thursday-Saturday, August 4-6
Winter 2006	San Antonio TX	Thursday-Sunday, January 12-15
Summer 2006	Knoxville TN	Thursday-Saturday, August 10-12
Winter 2007	New Orleans LA	Thursday-Sunday, January 4-7
Summer 2007	San Jose CA	Friday-Sunday, August 3-5
Winter 2008	San Diego CA	Sunday-Wednesday, January 6-9
Summer 2008	Madison WI	Thursday-Saturday, July 31-August 2
Winter 2009	Washington DC	Wednesday-Saturday, January 7-10

Welcome to the national Project NExT Fellows for 2003-2004 who have faculty appointments in the Northeastern Section:

Arpad Benyi, University of Massachusetts, Amherst MA
 Barbara Boschmans, Plymouth State College, Plymouth NH
 Meredith Greer, Bates College, Lewiston MA

Christopher Hammond, Connecticut College, New London CT
Wataru Ishizuka, Providence College, Providence RI
Steven Jackson, University of Massachusetts, Boston MA
Allison Pacelli, Williams College, Williamstown MA
Jessica Sidman, Mount Holyoke College, South Hadley MA

I look forward to the Northeastern Section's Fall Meeting at Wellesley College and to the upcoming MAA/AMS Joint Mathematics Meetings to be held in Phoenix in January 2004. I hope that I will see you at either or both of these.

Message from the Secretary-Treasurer..... Ann Kizanis

I gave my last Treasurer's report at the Spring MAA meeting at the Massachusetts College of the Liberal Arts. At that time, our balance was 7,228.83. The meeting at the Massachusetts College of the Liberal Arts was well organized and included many interesting talks. The expenses from that meeting totaled \$1,899.00 while the income made totaled \$3,931.00. We broke even from the Summer Short course, received \$2,700.00 from the MAA subvention, and made a reimbursement of \$83.00. As a result, our present balance is \$11,877.83.

Our section will be saving more money from the postage and printing of our newsletters, since the newsletter "lite" format will now be adopted by the majority of our members. We spent \$2,015.65 on the printing, postage, and preparation of our Spring 2003 newsletter. I am confident that we will save a significant amount of money over time by converting from the complete newsletter to this new format for most of our members.

In the spring, I wrote and submitted the yearly financial report of the Northeastern Section of the MAA. I also wrote our section's annual report at the beginning of the summer.

That is my update for now! We are all looking forward to the Fall MAA meeting, where I will update you further on our financial state. Have a good semester everyone!

Motions Passed at Executive Meeting, June 13, 2003 Ann Kizanis

The following motions were passed at the Executive Committee meeting at the Massachusetts College of the Liberal Arts on June 13, 2003:

1. We approved an amended version of the Guidelines for Local Arrangement Chairs.

2. We approved an amended version of the Guidelines for Program Chairs.
3. We approved Roger Williams University in Bristol, RI as the site for the spring 2004 meeting on June 3-4, 2004. (Bruce Burdick, Joel Silverberg, and Frank Ford compose the local arrangements committee.)
4. We approved St. Joseph's College in West Hartford, CT as the site for the fall 2004 meeting, assuming that college decides to host the meeting. (Ron DeGray would work on the local arrangements.)
5. We approved Bates College in Lewiston, ME as the site for the spring 2005 meeting. (Bonnie Shulman and others will work on the local arrangements.)
6. We approved a travel allowance for the governor of the NES/MAA of up to \$250 for each of the winter and summer meetings. This money would be available, if needed, to supplement funds from the National MAA and the local institution.
7. We approved a travel allowance for the chair of the NES/MAA of up to \$250 for each of the winter and summer meetings. This money would be available, if needed, to supplement funds from the National MAA and the local institution.
8. We approved that we would hold a one-day mini-course and not a short course next spring. The one-day mini-course would immediately precede the spring meeting.
9. We discussed ways to move from mailing a complete newsletter out to all members. One idea was to send out a one-page summary. Feedback from the members has and will be solicited. Ann also mentioned in the annual report that a complete e-mail address list is needed for our section from the National Office to help us in future electronic mailings of the newsletter.

Two-year College Representative's Report.....Kathy Bavelas

The Annual AMATYC Conference will be held in Salt Lake City on November 13-16, 2003 and is entitled "Prime Time Fun Mathematics."

A few of the highlights will be:

- On Friday morning Tom Angelo is running a special session on the

- Scholarship of Teaching, followed by an in-depth symposium.
- Four themed series of short sessions presented by some of the AMATYC academic committees are:
 - Best Practices in Placement and Assessment
 - Technologies and Instructional Techniques Effective in Distance Learning
 - "Wow! It's Working!" – techniques that increase student success
 - Math on the web
 - A new draft on the Standards review process will be available for review
 - Eric Jolly will present: Bridging Homes and Schools: Education in a World of Diversity
 - Donna Duffy will present: Translating the Scholarship of Teaching into College Classrooms
 - Steven Gadbois will present a two-part workshop on Math and Music.

On another note: The Tenth International Congress on Mathematical Education (ICME-10) will be held on July 4-11, 2004, in Copenhagen, Denmark.

The first ever joint meeting between ATOMIC (Associated Teachers of Mathematics in CT) and MATYCONN (Mathematical Association of Two-Year Colleges in CT) was held on Oct. 3 at Middlesex CC in Middletown CT. Michael Frame from Yale University and Nial Neger retired from Trumbull High School and now working with Michael and Benoit Mandelbrot provided a delightful after dinner fractal presentation and hands-on activity. The URL for their presentation is <http://classes.Yale.edu/fractals/atma/atma.html>

The spring MATYCONN meeting will be hosted by Norwalk CC in Norwalk, CT on April 30 and the spring NEMATYC meeting is on April 2-3 at Mount Wachusett CC in Gardner, Massachusetts.

From the Newsletter Editor Frank Ford

The Northeastern Section is blessed with an abundance of capable and productive workers who bring glory to all of us. This thought comes to mind as I once more congratulate those who have achieved since the last newsletter. First, Laura Kelleher will continue her long record of service to the Section by being Governor. We are fortunate to have her succeed Donna Beers in that role. Can any other Section boast a back-to-back duo like that one? Once again, a member of the Section won the Haimo Award for Distinguished Teaching. Tom Garrity of Williams becomes the third or fourth faculty member from Williams to win that award. It is possible that Williams has more winners than some other Sections! I had better be careful what I say since this newsletter goes to newsletter editors from other Sections. Besides great teachers, we have great

writers in our Section. Warren Johnson of Bates College won a Lester R. Ford Award for his article in the American Mathematical Monthly. If you read the information on the winners of the writing awards at the MAA web site, you will also notice that several of them were educated at Harvard and at least one (David Finn) received his Masters and Doctorate from Northeastern.

In Ann Kizanis' report above, she mentions our effort to save some money by moving from paper copy to internet versions of this newsletter. The response to our postcard mailing was excellent. About 100 people will receive a mailed version of the full newsletter, and another 100-200 will receive no mailed version of the newsletter. The rest of the membership will receive the newsletter "lite." I hope that some of them will be reading this on the web.

Finally, it is time to say goodbye to Ockle Johnson as he steps down as Chair. He will still be on the Board for the next two years. Even after those two years, he will remain an active member of the Section. He has just completed a sabbatical and he is now involved in the organization of a conference at Brown in honor of Tom Banchoff's 65th birthday. He managed to update and codify our guidelines for local arrangements and program chairs, an important chore. Congratulate him when you see him at the Wellesley meeting next month. He is succeeded by the energetic Sarah Mabrouk. I heard her speak at the MathFest and visited her web site to view her Excel worksheets. If you have not visited there, do so. I'm envious of her Excel skills.

See you at Wellesley.

Student Papers Presented at the Spring 2003 MAA/NES Section Meeting:

Stephen Estelle, Massachusetts College of Liberal Arts

Optimizing Your Investments

Josh McLain, Massachusetts College of Liberal Arts

Computer Modeling of Stock Portfolios under Simulated Market Conditions

Elizabeth Texeira, Emmanuel College

The Impact of Monetary Factors on MCAS Performance

Daniels Zaharopol, Massachusetts Institute of Technology

The Hyperbolic Plane as the Univesal Cover of Surfaces of Genus Greater than One

Tom Legnani, Central Connecticut State University

The Game of Blackout

Jeremy LaCrosse, Massachusetts College of Liberal Arts

Got Math?

Contributed Papers Presented at the Spring 2003 MAA/NES Section Meeting:

Debra Borkovitz, Wheelock College

The Name Came: Exploring Random Permuatations

Joel Silverberg, Roger Williams University

Distinguishing between Precision and Accuracy: Case Studies in Examples of Carbon-14 Dating Presented in PreCalculus and Calculus Textbooks

Jeff Suzuki, Bard College

A Report from the Trenches: Using Online Quizzes

Sarah L. Mabrouk, Framingham State College

The Student-created Web Page as a Component in a Word Problem Analysis Assignment

Tribute to Ken Preskenis (1940-2002).....Sarah Mabrouk

(Ken Preskenis died within a week of our meeting at Framingham State last Fall. I missed putting this tribute to him from Sarah Mabrouk in the Spring Newsletter but I hope that people will still want to read this. His death was truly unexpected. I remember talking to him at the meeting. - Newsletter Editor)

A dedicated teacher committed to excellence. A serious scholar. A popular son of South Boston. A gentleman. Ken Preskenis died of a massive heart attack on Thanksgiving Day, 2002.

Ken Preskenis had a passion for mathematics and for sharing that love with others, especially, youngsters. A relentless pursuer of knowledge, he was a regular participant at the weekly seminars in functional analysis at Brown University. To celebrate the 100th anniversary of the Weierstrass Approximation Theorem, Ken played a singular role in organizing a two-day conference in 1985 at Framingham State College, which was well-attended by high school teachers and college faculty. His extension of the approximation theorem in 1984 was a significant breakthrough.

Ken was a torchbearer in the promotion of quality in teaching and he had high expectations of his students. In fact, he expected and demanded quality and accountability both inside and outside the classroom. He always encouraged students to excel in their studies and at work.

His mathematical interests, however, were not confined to the classroom or his office. He relayed his love of mathematics to young children through the Mathematics Olympics Program that he initiated at Southie's five parochial schools while he was on sabbatical leave 11 years ago.

A South Boston Little League coach for 43 years, Ken often used baseball to promote mathematics, its power, and its beauty. He would use the sport to instill discipline, patience, and hard work, and to help players to understand mathematics and its intricate nature. An avid storyteller, he would entertain his classes with baseball anecdotes.

Ken served as the Program Co-Chair for the NES/MAA Fall 1990 meeting held at Framingham State College, which had a record number of participants; this record still stands today. A member of the Local Arrangements

Committee for the Fall 2002 meeting, he was active at the registration desk, registering participants, telling stories, and meeting new members. He presented contributed papers at nearly every Fall meeting of the Section and at numerous national conferences.

After graduating from Boston College High School in 1957, Ken entered Boston College; he graduated four years later. He received his M.S. in 1967 and Ph.D. in 1971, both from Brown University. Three years later, he did postdoctoral work at Aarhus University, Aarhus, Denmark.

He joined the faculty at Framingham State College in 1977 after teaching at Newton College of the Sacred Heart and then at Boston College for a total of 14 years. He chaired the mathematics department at Newton College of the Sacred Heart for six years.

An author of a number of articles in analysis and mathematics education, a regular attendee and contributor at MAA/NES meetings, a South Boston Athletic Hall of Famer, and a recipient of the Michael E. Glynn South Boston Community Service Award, Ken and his enthusiasm will be greatly missed by the mathematics community and especially the Section.

Tribute to John ShanahanJerry Keough

(Daniel Chambers, our liaison at Boston College, sent me this tribute written by the Chair of the Mathematics Department, on the death of John Shanahan of their department. – Newsletter Editor)

On Thursday, September 11, 2003, the Mathematics Department lost one of its long-time citizens after a lengthy battle with cancer.

John Peter Shanahan received the B.Sc. (1956) and M.Sc. (1957) degrees from University College, Galway, Ireland, and then the Ph.D. (1962) from Johns Hopkins University in Baltimore, MD.

Professor Shanahan was a student of John Hartman (himself a student of Aurel Wintner). His expertise was in the areas of Analysis and (Partial) Differential Equations. He would go on to publish several articles on the solutions to certain types of hyperbolic equations during his mathematical career.

Professor Shanahan joined the Mathematics faculty of Boston College in the Fall of 1962 as an Assistant Professor, and was promoted to Associate Professor with tenure in 1967.

His Irish wit and reserved sense of humor endeared him to two generations of undergraduates and his faculty colleagues. Once, when asked by a student in class “Professor Shanahan, are you a doctor?,” Shanahan responded in his characteristic, self-effacing manner by asking the student “Why, are you sick?”

Professor Shanahan was assigned to room 322 in Carney Hall when the Mathematics Department was moved into a then, newly-constructed Carney Hall in 1963 -- an office which until Thursday housed his warm smile and engaging personality. He is believed to be the longest, single-office occupant in the entire building, a home over the years to hundreds of faculty members in the College of Arts and Sciences.

John P. Shanahan was 68, and served Boston College and its students for a total of 41 years.

Professor Shanahan was preceded in death by his sister Mary (Murray). He leaves a second sister, Sally (Sharratt), and several nieces and nephews.

Thomas Garrity Wins Haimo Award for Distinguished Teaching

(I asked Colin Adams, who had nominated him, to comment on the awarding of the Haimo Award to Thomas Garrity of Williams College. This is what he sent me. --Editor)

When Tom Garrity arrived at Williams in 1989, there were 11 senior math majors. This year, 52 sophomores signed on to be majors. Much of the success of the department can be traced to Tom Garrity. He brings an overwhelming enthusiasm, a love of everything mathematical and an ability to reach students at every level.

Tom Garrity is one of those teachers that students never forget, the kind that will come up in discussions at the students' 50th reunion. He is completely uninhibited. There was the time Tom taught an entire class hopping on one foot. Another time, Tom decided to teach the rest of a class period without saying a word, entirely by writing on the board and hand signals. Approaching a key point, he has been known to raise his voice dramatically, and say "And now I am raising my voice dramatically to create an artificial sense of excitement as we reach the key point".

Why does he do these things? First and foremost, because he knows that students will remember the math, not just the antics. And secondly, he is just being himself. This is how he behaves in and out of the classroom.

Students adore him. Comments include: "HYPER CAFFEINE TRIP!!!", "He is soooooo smart, such a great teacher, and he is hilarious. You will fall in love with him trust me!!!",

"Anyone who can make an 8:30 AM calc class one of the best classes I've taken at Williams deserves large amounts of praise. His self proclaimed "cheap pedagogical tricks" to make material fun, funny, and attention-grabbing, are always successful. Garrity WILL make you crack up in class. He is a tough prof though. Expect to work a lot, and to work hard."

Garrity's classes are notorious for being some of the most difficult on campus. There is a certain cachet in having survived them. And yet students

flock to them.

Whereas most members of the Mathematics Department at Williams will have zero or one thesis student in a given year, it is not unusual for Tom to have three thesis students, often working in three different areas. His far reaching mathematical interests make him an exceptional advisor.

His book, "All the mathematics You Missed(But Need to Know for Graduate School)" , has extended his impact well beyond Williams. It provides an inspirational overview of the important topics every incoming graduate student should know.

Tom Garrity's catchphrase is "Functions Describe the World". The students have picked it up. It appears chalked on the sidewalk, it appears on posters, and it appears in innumerable student talks. Tom stands out as an exceptional teacher, as someone who can take math phobic students and turn them into mathematicians. He draws them into his world, where thinking about mathematics is as natural as breathing, and in the process, he instills in them a lifelong love of all that is mathematical.

Warren Johnson Wins Lester R. Ford Award

(I asked Warren Johnson of Bates College to comment on his winning a Lester Ford Award at the MathFest this Summer. This is what he sent me. –Editor)

Frank Ford asked me to write something about being one of the winners of a Lester R. Ford this year for my article *The Curious History of Faà du Bruno's Formula*, which appeared in the March 2002 issue of the *Monthly*. First let me say once more what a joy and an honor it was for me to receive this award. As I said in my brief impromptu acceptance speech in Boulder, this is the greatest award I ever expect to receive. I hope to write more articles of a similar nature in my career, and if I'm really lucky maybe I'll win something like this again, but even then I don't think it would beat this experience. This subject was the primary focus of my research for a period of several years, but I was thinking about some other things too, and that turned out to be very important. When I found Faà du Bruno's Formula in Scherk's 1823 thesis I had no inkling that it was going to be there; I was trying to find out what he knew about Euler numbers (the Taylor series coefficients of $\sec x + \tan x$). And I was only at the Library of Congress that day because I had miscalculated the dates of the January 2000 AMS meeting and arrived in Washington DC a day early. I bought Lacroix's calculus book largely because it has a very nice summary of what was known in the early 1800s about Lagrange's series. I worried for several months that I really shouldn't have spent \$600 for it, but then I found Faà du Bruno's Formula there, and I felt it had paid for itself. I can't resist telling another story, even though it doesn't concern this project directly. In June 2002 I discovered some peculiar generalizations of Leibniz's rule for the n -th derivative of a

product of two functions. I was still thinking about Lagrange's series then, and in August 2002 I went to Harvard to look up (among other things) a 1795 paper of Pfaff on the subject. I was shocked to find equivalent forms of my generalized Leibniz rules there. When I got back to Maine I had another surprise in store: it suddenly occurred to me that there hadn't been anything on Lagrange's series in Pfaff's paper. So I checked the reference again, and sure enough, I had looked at the wrong paper. One of the main things that I hope I've learned from doing the Faà du Bruno's project and others like it is: always track down any reference that you possibly can, and always keep your eyes open for anything else of interest when doing so. Also, revise about a thousand times.

Nominations for the Distinguished Teacher Award Sarah Mabrouk

There is no packet of forms to fill out in order to make nominations for the 2004 Northeastern Section of the Mathematical Association of America (NES/MAA) Award for Distinguished College or University Teaching of Mathematics: you create the nomination packet with various letters written by those familiar with the candidate's teaching/research/publications. The eligibility and nomination requirements as well as some hyperlinks to help you in creating the nomination packet are listed below.

The eligibility requirements are

- college or university teachers who currently teach a mathematical science at least half-time during the academic year in a public or private college or university in the United States or Canada (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 experience in teaching a mathematical science, and
- has membership in the Mathematical Association of America and is teaching in the Northeastern Section,

and the nomination requirements,

- widely recognized as extraordinarily successful in his/her teaching,
- has teaching effectiveness that can be documented,
- has influence in teaching beyond his/her own institution, and
- fosters curiosity and generates excitement about mathematics in students.

Nominations for the 2004 NES/MAA Award for Distinguished College of University Teaching of Mathematics are due by October 30, 2003, and the winner of the Section's award for distinguished teaching is then nominated for the Deborah and Franklin Tepper Haimo Award for Distinguished College or University Teaching of Mathematics. General information for the distinguished

teaching can be found on the NES/MAA website,

<http://www.southernct.edu/organizations/nesmaa/sectionawards.html#NES/MAA%20Teaching%20Award>, as well as on the MAA website

http://www.maa.org/Awards/CFN_Template.html (currently the 2003 nomination information is posted on this page but you may find it helpful).

Information about the nomination process as well as about the National award can be found on the MAA website,

- <http://www.maa.org/Awards/teachingawards.htm>
- http://www.maa.org/Awards/Haimo_EGN.pdf (general guidelines/eligibility information)
- http://www.maa.org/Awards/Haimo_NF.pdf (nomination form).

Nominations must be submitted on the nomination form that can be found at http://www.maa.org/Awards/CFN_Template.html (should be updated later) and nominations should include no more than five letters of recommendation of no more than one page each,

- two letters from present or former students
- two letters from colleagues one of whom could be the department chair, and
- one additional letter from anyone qualified to comment on extraordinary teaching success.

In addition to these letters, the nomination should include a narrative describing the nominee's background, experience, teaching style, special contributions, other teaching awards, evidence of unusual/extraordinary achievement/success in teaching; this narrative should be no more than five double spaced pages. Additional documentation on the nominee's teaching success including but not limited to summaries of peer or student teaching evaluations, comments on teaching, possible increases in the number of undergraduate/graduate degrees in mathematics directly related to the nominee, and student successes in mathematics competitions may be included on no more than three additional pages.

It is important to note that the Nomination Form,

http://www.maa.org/Awards/Haimo_NF.pdf contains a note that states that "if the nomination packet significantly exceeds the prescribed limits" then "it will not be eligible for consideration for a national award." Since the nomination packet for the Section award will be forwarded to MAA for consideration for the National award, it is important to consider this caution and not exceed "the prescribed limits."

Once you have compiled the information and letters for the nomination packet, please send the completed packet to Sarah Mabrouk at Framingham State College before the October 30, 2003 deadline. Once you have mailed the packet to

Sarah Mabrouk
Framingham State College
100 State Street
Framingham, MA 01701,

please call, 508-626-4785, or email, smabrouk@frc.mass.edu, to confirm the receipt of the nomination packet. The nomination process will not be complete until you have received confirmation that the completed nomination packet has been received. Please send any questions that you may have to Sarah Mabrouk at smabrouk@frc.mass.edu or call her at 508-626-4785.

Conference Honoring Tom Banchoff on the Occasion of His 65th Birthday Year

(Ockle Johnson and David Cervone sent this announcement to me and many others. I think it should receive very wide dissemination since Tom Banchoff has been such a loyal member of the MAA. – Editor)

You are invited to take part in a conference entitled "Thomas F. Banchoff: A Man of Many Dimensions", organized for the purpose of honoring Professor Banchoff in this, his 65th birthday year.

There are many ways you can participate:

- (1) Attend one or both days of the conference to be held at Brown University on Friday, Oct. 31 and Saturday, Nov. 1.
- (2) Send artwork or computer graphics to share at the conference
- (3) Join us for the banquet on Saturday evening, Nov. 1 at the Brown Faculty Club. (think about sharing a short anecdote there.)
- (4) Participate virtually by logging on to the conference website <http://www.math.brown.edu/TFBCON2003/>, offer your congratulations to Tom and share a remembrance, a favorite math problem and/or a graphic. Go to the conference website for a schedule of events, registration for the conference and/or dinner, and information about hotel, and travel directions. If you have questions, please e-mail us at the addresses below or contact Natalie Johnson, Brown Mathematics Department Secretary at (401) 863-2708 or at natalie_johnson@brown.edu mailto:natalie_johnson@brown.edu. We hope you will find some way to join us on October 31 and November 1 in honoring Tom and his accomplishments.

From Davide Cervone and Ockle Johnson dpvc@union.edu
<mailto:dpvc@omega.math.union.edu> ojohnson@keene.edu
<mailto:ojohnson@keene.edu>

From the Colleges

Bates College (reporter **Bonnie Shulman**) This year **David Haines** is acting chair of the department, as **Peter Wong** takes a yearlong sabbatical. **John Rhodes** is returned from his sabbatical. We are all proud of **Warren Johnson**, who received a Lester R. Ford Award at Mathfest. The Math Council, our student activities group, is organizing a trip to Portland to see a production of the play "Proof" by David Auburn.

Framingham State College, MA (reporter **Sarah Mabrouk**) **Julie Levandosky** joined the Mathematics Department at Framingham State College in Fall 2003. Before coming to Framingham, she was the Szego Assistant Professor of Partial Differential Equations at Stanford University. Julie earned her Ph.D. and her Sc.M. at Brown University and her B.S. at the University of Massachusetts - Amherst. **Michelle Capozzoli** joined the Mathematics Department at Framingham State College in Fall 2002. Before coming to Framingham, she worked at Bristol-Myers Squibb as a Biostatistician in the Non-Clinical Department. Michelle earned her Ph.D. and her M.S. from the University of New Hampshire and her B.S. from Bridgewater State College.

Keene State College, NH (reporter **Ockle Johnson**) **Dick Jardine** was promoted to Associate Professor, and **Ockle Johnson** received the 2003 New Hampshire Council of Universities and Colleges Excellence in Education award for college and university teaching.

Mount Holyoke College (reporter: **Margaret Robinson**) Mount Holyoke has hired **Jessica Sidman**, PhD 2002 from Michigan Univ, for a tenure track job. Last year we hired **Jillian McLeod**, PhD 2002 from Howard Univ, also tenure track. This year we will be hosting the **Hudson River Undergraduate Mathematics Conference** on April 3, 2004. The Keynote speaker will be **Nancy Kopell** from Boston University. The web site for the Hudson River conference is: <http://www.skidmore.edu/academics/mcs/hrumc.htm>.

Providence College (reporter **Frank Ford**) Providence hired **Wataru Ishizuka** who completed his Ph.D. at the University of Kentucky in Partial Differential Equations. He is a NExT Fellow this year.

Rhode Island College (reporters **Fred Harrop** and **Helen Salzberg**) Dr. **Al Cuoco**, Center Director for the Educational Development Corporation (EDC), will give the first Smith Lecture on Thursday, November 20, 2003. This talk honors Dr. **Arthur Smith**, who died on February 11, 2003, and who had taught at RIC for 38 years. He is greatly missed by all who knew him. All are welcome to attend. Dr. **David Abrahamson** has won the 2003—2004 Paul

Maixner Distinguished Teaching Award in the Faculty of Arts and Sciences. Dr. **Lisa Humphreys** will be giving the Christie Lecture at the MAA Northeastern Section Meeting at Wellesley College this November. Dr. **Mariano (Rod) Rodrigues** is on the Editorial Panel of *The Math Teacher*. The Rhode Island College Mathematics and Computer Science is pleased to announce that it has hired two outstanding faculty members this year--Dr. **Donna Christy** and Dr. **Peter Andreozzi**. Dr. **James Bierden** intends to retire at the end of this academic year.

St. Michael's (reporter **George Ashline**) In April of 2003, the Vermont Alpha Chapter of Pi Mu Epsilon was installed at St. Michael's College. Fifteen student and five faculty charter members were inducted at that time. One of the student charter members, **Tristan Hauser**, gave the Pi Mu Epsilon supported talk "Relative Consistencies of Geometries" at this summer's Boulder Mathfest. Professor Emeritus **Vincent Naramore** passed away in July 2003. He will be especially remembered for his wit, his activity in polling, and his many years of teaching the Geometry course.

Salem State College (reporter **Mary Platt**) **Maura Murray** organized an NSF sponsored workshop for college faculty at Salem State College June 15 - 21, 2003. **Judy Walker**, from the University of Nebraska, Lincoln, taught the workshop entitled "Some Current Problems in Coding Theory". Fifteen participants came from all over the country and by the end of the week they produced rough drafts of classroom modules to use with their classes. **Julie Belock** from Salem State will present a paper, 'Gaming Simulations in Probability' at the 16th Annual International Conference on Technology in Collegiate Mathematics, which will be held in October in Chicago.

Southern Connecticut State University (reporter **Ross Gingrich**) The Mathematics Department at Southern Connecticut State University moved into a new set of offices last Spring. It is now located in a new addition to Engleman Hall, moving from temporary offices in another part of the same building. With the move the Math Department has picked up some new facilities, including a reading room/library and a department computer lab. The 25 machines in the computer lab can be booted either to a Windows operating system or a Linux operating system. In news about people, **Michael Meck** retired after more than 30 years, and **J. Philip Smith** was named the interim president of Southern. Phil is a former chair of the Mathematics Department and most recently was Vice President for Academic Affairs.

UMass-Boston (reporter **John Lutts**) We hired a new Ph.D. from Yale named **Steve Jackson** (jackson@math.umb.edu) who works in representation theory for classical group. He is also interested in math education and tutoring. We

tried to hire an applied mathematician in biology for the second year in a row but we were unsuccessful. **Geza Schay** is working on a probability and statistics text book – two volumes. It would be of great help to our computer science majors who must take a semester of probability and statistics combined for the ACS accreditation program. **John Lutts** has been put in charge of math tutoring here. This is a sizable operation that tries to help students in the elementary Math and CS courses (up to Calculus II and the first two programming courses in cs.) We currently have 16 tutors involved. and expect to service over a 1000 students during the coming academic year. He and **Dennis Wortman** hope to help out this October through March with students at **TechBoston** getting them ready to tackle the MCAS math exam. (This is a new school in Boston for which students are randomly drawn from the city schools; it has a focus on technology and it one of three schools now occupying the old Dorchester HS building.) Finally, UMass/Boston is hoping to hire a senior person either in applied statistics or applied mathematics and will be recruiting soon.

Westfield State College, MA (reporter **Phil Hotchkiss**) Westfield State has two new hires: **Dr. Edward Welsh**, who received his PhD from Duke University in 2003, and **Dr. Parag Mehta**, who received his PhD from New Mexico State University in 2003. **Phil Hotchkiss** was awarded tenure and promoted to Associate Professor, and Professor **Andrew Kim** retired in December 2002.

Williams College (reporter **Ed Burger**) Williams hired two new assistant professors. The first hire is **Kris Tapp** who received his Ph.D. from the University of Pennsylvania and has taught at Haverford College, was a VIGRE Postdoctoral Fellow at SUNY Stony Brook and comes most recently from a Keck postdoctoral position at Bryn Mawr College. Tapp's research area is differential geometry. The second hire is **Allison Pacelli** who comes from Brown University where she received her Ph.D. and where she has been a Teaching Fellow. Pacelli's research area is algebraic number theory.

Yale University (reporter **George Seligman**) Yale has two new Professors: **Yair Minsky** (formerly of Stony Brook) and **Mikhail Kapranov** (formerly U. of Toronto), and two new Adjunct Professors: **Alex Lubotsky** (Hebrew Univ., Jerusalem) and **David Sattinger** (formerly Utah State Univ.) Visiting Professors this year are: **Hillel Furstenberg** from Hebrew Univ., Jerusalem, during the fall term, 2003, and **Ivan Penkov** from UC-Riverside during the fall term, 2003, as well as two Visiting Lecturers: **Alexei Kazarnovskii-Kroll** and **Olivier Schiffmann**, also during the fall term, 2003. This year's Gibbs Assistant Professors are: **Tsachik Gelander**, **Angela Gibney**, **Harald Helfgott**, **Yosi Keller**, and **Daniel Krashen**. A major conference in group theory in honor of **Walter Feit** is to take place at Yale Oct. 30 - Nov. 2. Information is available at

the website of Ronald Solomon, of Ohio State. **Walter Feit** plans to retire at the end of calendar 2003, as do **Richard Beals** and **Ilya Piatetski-Shapiro**. The Chair of the Department is **Gregory Margulis**; the Director of Graduate Studies (Math) is **Roger Howe**; the Director of Graduate Studies (Applied Math) is **Steven Zucker**; the Director of Undergraduate Studies (Math) is **Andrew Casson**; and the Director of Undergraduate Studies (Applied math.) is **Joseph Chang**, (**Zucker's** base is computer science and electrical engineering; **Chang's** is statistics).

Northeastern Section NExT at Fall Meeting.....Lisa Humphreys

The Northeastern Section is continuing with its Section NExT activities for new and relatively new colleagues at this year's spring Section meeting. By providing talks and workshops on issues of interest, opportunities to meet and share ideas with other new colleagues, and an introduction into Section activities, we hope to assist new faculty in their transition from graduate school to professional academic life. We welcome all untenured full time faculty, both those who have and have not been National NExT fellows. We also welcome all newly hired faculty (those of whom will begin their appointment in the summer or fall of 2003).

The program will begin at 10:00 am on Friday, November 21, 2003. Paul Blanchard of Boston University, a former NES/MAA Distinguished Teacher recipient, will share how he uses technology and the web to enhance instruction. David Abrahamson, 2003 recipient of the Paul Maixner Award for Distinguished teaching at Rhode Island College, will share some of his ideas about teaching and how he uses humor in the classroom

If you are interested, please contact Lisa Humphreys of Rhode Island College at lhumphreys@ric.edu. You should also register for the Section meeting by completing the registration form in the Section Newsletter and check off that you will be participating in the Section NExT program. (If you did not receive a Newsletter, indicate that to Lisa.) Note: the Section NExT activities are free.

Call for Student Papers

Students (and recent graduates) from the Northeastern Section are invited to present talks at the Fall meeting on topics in mathematics, statistics, or computer science. The presentations should be 10-15 minutes in length, on expository work, research projects, employment experiences, or problems from mathematical periodicals. The registration fee and cost of meals will be waived for one student presenter per paper. Interested students should contact Michael Cullinane, mcullina@keene.edu, or Lisa Humphreys, lhumphreys@ric.edu. The deadline for submission is Nov.7.

Call for Contributed Papers

Participants at the Fall Meeting of the section are invited to submit contributed papers. We are particularly interested in papers that will appeal to a variety of participants. If you are planning to speak about results of your research, keep in mind that the audience most likely will not be familiar with your specialty, so you will want to give some motivation and context for your work. Your presentations should be approximately 15 minutes in length. Please send an abstract and your mailing address together with a list of any special equipment you may need to Tommy Ratliff at tratliff@wheatoncollege.edu. Email submissions are preferred, but you may also send a typed submission to Tommy Ratliff, Department of Mathematics; Wheaton College; Norton, MA 02766. The deadline for submission of abstracts is Nov 1.

Call for New Faculty Session

New faculty are invited to submit papers for the New Faculty session at Northeastern Section Fall MAA meeting. The purpose of these talks is to introduce you to the section. These talks should focus on either your research or pedagogical activities. If you are giving a talk on your research, please remember that there will be people in the audience that are unfamiliar with your research area so it might be helpful to give some background and motivation. Your presentations should be approximately 15 minutes in length. Overhead projectors and PC computers (no Macs) with projection capabilities will be available. Please send a 25 word or less abstract, any special equipment needs you may have and your mailing address to Phil Hotchkiss at photchkiss@wisdom.wsc.ma.edu or Chris Aubuchon at aubuchoc@badger.jsc.vsc.edu. Email submissions are preferred, but you may also send a typed submission to

Phil Hotchkiss
Department of Mathematics
Westfield State College
Westfield, MA 01086

or

Chris Aubuchon
Department of Mathematics
Johnson State College
337 College Hill
Johnson VT 05656

The deadline for submission of abstracts is November 1.

Northeastern Section NExT Program

WELLESLEY COLLEGE

WELLESLEY, MASSACHUSETTS

Friday, November 21, 2003

10:00-10:30 Registration of prospective Section NExT fellows and preliminary information. (Sage Lounge, Science Center, Floor 2)

10:30-11:30

On-line Animations in Multivariable Calculus and Differential Equations

Paul Blanchard, Boston University, Boston, MA

11:30-11:45 Discussion

11:45-1:00 Lunch

1:00-2:00

Searching for Weapons of Math Instruction

David Abrahamson, Rhode Island College, Providence, RI

Northeastern Section of the MAA

Fall Meeting: November 21-22, 2003

WELLESLEY COLLEGE

WELLESLEY, MASSACHUSETTS

Mathematics- It's Everywhere

Friday, November 21, 2003

2:00 – 6:00 p.m. Registration in Sage Lounge (Science Center, 2nd floor)

2:00 – 3:00 p.m. Executive Committee Meeting (Science Center 273)

2:00 – 5:50 p.m. (Participants may come and go. They will assist in building 4-dimensional items)

Exploring four-dimensional geometry with Zometool

Mira Bernstein, Wellesley College, Wellesley, MA

3:00 – 3:50 p.m.

All You ever wanted to know about patterns in Baseball statistics

Steve Krevisky, Middlesex Community College, Middletown, CT

4:00 – 4:50 p.m.

How has this teacher failed? Let me count the ways...

Emma Previato, Boston University, Boston, MA

5:00 – 5:50 p.m. **Student Papers**

6:00 – 6:30 p.m. Reception

6:40 – 8:00 p.m. **Greetings from the President of Wellesley followed by Banquet**

8:10 – 9:10 p.m.

Geometry, Topology, and the Entanglement Phase Transition

Greg Buck, Saint Anselm College, Manchester, NH

Saturday, November 22, 2003

8:00 – Noon Registration

8:00 – 9:00 a.m. **New Colleagues Presentations**

9:00 – 10:00 a.m.

Fractal Dynamics in Health: Changes with Disease and Aging

Ary L. Goldberger, MD, Director, Rey Institute for Nonlinear
Dynamics in Medicine, Beth Israel Deaconess Medical Center,
Professor at Harvard Medical School and Program Director of the
NIH/NCRR Research Resource for Complex Physiologic Signals

10:00 – 10:30 a.m. Break

10:30 – 11:30 a.m.

**Christie Lecture: Exploring Uncharted Territory in Forced ODE's:
Strange and Counterintuitive Periodic Solutions**

Lisa Humphreys, Rhode Island College, Providence, RI

11:30 – 12:00 p.m. Business Meeting

12:00 – 1:30 p.m. Lunch

1:30 – 2:30 p.m.

New Perspectives on the Mathematics of Voting and Elections

Stephen Brams, New York University, New York City, NY

2:30 – 3:30 p.m.

**A Tintinnabulous Introduction to Group Theory: The British
Sport of Change Ringing**

Lucy Dechene, Fitchburg State College, Fitchburg, MA

3:30 – 4:30 p.m. **Contributed Papers**

Program Committee:

Frank Ford, Providence College, Chair
Kathy Bavelas, Manchester Community-Technical College
Rebecca Sparks, Rhode Island College
Mary Sullivan, Rhode Island College

Local Arrangements Committee:

Ann Trenk, Wellesley College, Chair
Stanley Chang, Wellesley College
Megan Kerr, Wellesley College

Wellesley College

The Wellesley College mission is "to provide an excellent liberal arts education

for women who will make a difference in the world". The Mathematics Department has twelve faculty members, and a separate Computer Science department has seven. We offer a wide variety of courses, including calculus, linear algebra, abstract algebra, real analysis, number theory, combinatorics, geometry, topology, differential equations, probability and statistics. In addition, students can pursue independent study, engage in honors projects and take advanced courses through the exchange with MIT.

Abstracts / Speakers

Exploring four-dimensional geometry with Zometool

Mira Bernstein, Wellesley College, Wellesley, MA

Zometool is a mathematical construction set whose ingenious design and versatility make it an ideal tool for exploring many aspects of three-dimensional geometry. However, in this workshop our focus will be on the geometry not of three but of four dimensions. Participants will use Zometool to construct 3D “shadows” (projections) of various four-dimensional “shapes” (polytopes). The centerpiece of the workshop will be a model of the truncated 120-cell - a beautiful, intricate structure about 6 feet in diameter which will be built as a group effort by all workshop participants.

The workshop will run on a drop-in basis: participants are welcome to show up and leave at any time. Everyone is encouraged to come for a little while to experiment with Zometool or to help with the construction of the truncated 120-cell. The geometric ideas underlying the constructions will be discussed throughout the workshop as the building progresses. No prior experience with Zometool or four-dimensional geometry is required.

Mira Bernstein received her BA from Yale University in 1994 and her PhD from Harvard University in 1999, specializing in algebraic geometry. She has taught at the University of California Berkeley and at Stanford before coming to Wellesley in 2002. Most of Mira’s experience with Zometool comes from working with students at Canada/USA Mathcamp, a binational summer program for talented high-school students, of which she is the executive director. She has made the truncated 120-cell only once before and looks forward to building it again at this workshop.

All you ever wanted to know about patterns in baseball statistics!

Steven Krevisky, Middlesex Community College, Middletown, CT

In this presentation, we examine patterns in a batter's seasonal home run totals, slugging averages and on base averages. Using such methods as z scores, we

will be able to see how such all-time luminaries as Jimmie Foxx, Babe Ruth, Mickey Mantle, Hank Aaron, Willie Mays, Ted Williams and others fared in these measures, especially compared to how the league did. Descriptive statistics will help as well. Are there also patterns regarding when a player had a "career year?" come hear how your favorite batter fits into the pantheon of greats.

Professor Krevisky was President of MATYCONN, 1992-1994 and 1998-2000, and coordinator of Connecticut system-wide math contest for several years. He has been a presenter, presider and delegate to annual meetings of AMATYC for several years and a presenter at NCTM meetings in Laramie, WY. 2001 and Montreal 2002. He has received travel grants to attend and present at the ninth international congress in math education (ICME-9) in Japan in 2000. He has also presented at the international conference on teaching statistics (ICOTS) in South Africa in 2002. He was President of Connecticut System Senate, 2000-2002.

How has this teacher failed? Let me count the ways...

Emma Previato, Boston University

This presentation is offered in gratitude for the MAA/NES 2003 teaching recognition. Through case studies, an illustration will be given of failures of this teacher and successes of her students. From the time I was called to the Dean's office, to the student's feat that (although the BU Bridge isn't The New York Times) Chairman David Rohrlich likened to Andrew Wiles': she put mathematics on the front page of a newspaper!

Emma Previato received her PhD from Harvard University in 1983 from the Fields Medalist David Mumford with a dissertation concerning applications of algebraic geometry to non-linear wave equations and other dynamical systems. In 1983 Emma became an assistant professor at Boston University, where she is now a full professor. She has pursued her research as a visitor, among other places, at the Institute for Advanced Studies (Princeton, NJ); the Mittag-Leffler Institute (Royal Academy of Sweden); the Bunting Institute (Radcliffe College); and the Mathematical Sciences Research Institute (Berkeley, CA). She is editor and writer of two books, a scientific dictionary, and some 40 technical articles, has supervised two doctoral and several undergraduate dissertations, and is currently nurturing four graduate students, in areas as diverse as classical projective geometry, mathematical physics, and coding theory. As the founder (1993) and advisor of the Boston University Student Chapter of the MAA, Emma has obtained grants (Exxon Foundation, BU's Humanities Foundation and Student Government) to create

undergraduate publications, interdisciplinary symposia, Masterclasses series, and fund other student activities, which she avidly partakes in.

Geometry, Topology, and the Entanglement Phase Transition

Greg Buck, Saint Anselm College, Manchester, NH

Filaments occur at every scale, from the molecular to the cosmic. We will introduce a new way to look at the entanglement of filaments that allows us to do four things: 1. Measure the entanglement rate for any filamentary process. 2. Find the relationship between the geometry and the topology of filamentary processes. 3. Identify a universal phase transition for filamentary processes. 4. Find relationships between entanglement rates and total curvature and the bending energy of a filament.

These results have applications wherever physical entanglements arise, in vortex and field lines, in magnetic flux tubes, in polymers and biopolymers, in cables, rope and hair. For example, the theory provides rationales for the supercoiling of DNA and the braiding of hair.

Greg Buck is Professor and Chair of Mathematics at Saint Anselm College. His research is in Applied Topology, Mathematical Molecular Biology, Celestial and other sorts of Mechanics, Models of Evolution, and some other conceptual locations. His writings have appeared in *Nature*, *Science*, and other leading mathematics and science journals. He received his Ph.D from Boston University in 1988.

Fractal Dynamics in Health: Changes with Disease and Aging

Ary L. Goldberger, MD, Director, Rey Institute for Nonlinear Dynamics in Medicine, Beth Israel Deaconess Medical Center, Professor at Harvard Medical School and Program Director of the NIH/NCRR Research Resource for Complex Physiologic Signals

According to classical concepts of physiologic control, healthy systems are self-regulated to reduce variability and maintain physiologic constancy. Contrary to the predictions of homeostasis, however, the output of a wide variety of systems, such as the normal human heartbeat, fluctuates in a complex manner, even under resting conditions. Scaling techniques adapted from statistical physics reveal the presence of long-range, power-law correlations, as part of multifractal cascades operating over a wide range of time scales. These properties suggest that the nonlinear regulatory systems are operating far from equilibrium, and that maintaining constancy is not the goal of physiologic control. In contrast, for subjects at high risk of sudden death, fractal organization, along with certain nonlinear interactions, breaks down, associated with a loss of complexity.

Application of fractal analysis may provide new approaches to assessing cardiac risk and forecasting sudden cardiac death, as well as to monitoring the aging process. Similar approaches show promise in assessing other regulatory systems, such as human gait control in health and disease. Elucidating the fractal and nonlinear mechanisms involved in physiologic control and complex signaling networks is emerging as a major challenge in the post-genomics era. These problems present exciting opportunities for interdisciplinary research.

Ary L. Goldberger is a graduate of Harvard College and Yale Medical School. He is currently Associate Professor of Medicine at Harvard Medical School and Director of the Margret and H.A. Rey Institute for Nonlinear Dynamics in Physiology and Medicine (<http://reylab.bidmc.harvard.edu>) at Beth Israel Deaconess Medical Center. He is also the Program Director of the NIH/NCRR Research Resource for Complex Physiologic Signals (<http://www.physionet.org>). Dr. Goldberger and his colleagues have had a longstanding interest in the application of concepts from nonlinear dynamics to basic physiology and bedside medicine

Christie Lecture: Exploring Uncharted Territory in Forced ODE's: Strange and Counterintuitive Periodic Solutions

Lisa Humphreys, Rhode Island College, Providence, RI

This talk will highlight the easy access and sheer fun of research in applied mathematics. We will detail a research journey examining a differential equation model of the motion of a suspension bridge. The origins began as an eighteen-month long undergraduate honors project and later culminated with unexpected results including a successful numerical scheme. Details of various solution spaces will be shown through the use of bifurcation curves. Different numerical tools will be highlighted, some of which are certainly accessible to undergraduates. Possible undergraduate projects, stemming from this work, will also be presented.

Lisa Humphreys earned her Ph.D. at the University of Connecticut in 1994. She is now an associate professor at Rhode Island College. Her major research interests include the numerical analysis of partial differential equations, mountain pass techniques and the study of nonlinear mechanical models. She has served the Northeastern Section as the prime mover behind the Northeastern Project NExT and as one of the coordinators of the Student Papers sessions at the Sectional meetings. She has directed undergraduate research and has brought students to speak at Sectional meetings.

New Perspectives on the Mathematics of Voting and Elections

Stephen Brams, New York University, New York City, NY

A new framework is proposed for comparing and analyzing voting systems, based on the notion of "voter sovereignty." The idea is that voters should be able not only to vote for as many or as few candidates as they like, but they should also be able to prevent, insofar as possible, the election of unacceptable candidates. "Approval voting," now used by the MAA, AMS, and several other professional societies, maximizes these abilities. It is compared with other voting systems, including the Borda count, the Hare systems of single transferable vote ("instant runoff"), and other voting systems with respect to these abilities and its propensity to yield stable and strongly stable (equilibrium) outcomes.

Steven J. Brams is Professor of Politics at New York University. He is the author or co-author of 14 books that involve applications of game theory and social choice theory to a variety of fields. His most recent books, co-authored with Alan D. Taylor, are *Fair Division: From Cake-Cutting to Dispute Resolution* (Cambridge University Press, 1996) and *The Win-Win Solution: Guaranteeing Fair Shares to Everybody* (W.W. Norton, 1999). He is a Fellow of the American Association for the Advancement of Science, the Public Choice Society, a Guggenheim Fellow, a past president of the Peace Science Society (International), and in 1998-99 was a Visiting Scholar at the Russell Sage Foundation

A Tintinnabulous Introduction to Group Theory: The British Sport of Change Ringing

Lucy Dechene, Fitchburg State College, Fitchburg, MA

About 130 years before the birth of Galois, a poorly educated London printer essentially discovered permutation groups and cosets while attempting to formalize a method for ringing all possible permutations on a set of tower bells. This historical and mathematical talk will discuss the origins of change ringing and Fabian Stedman's discoveries still used today. We will also look at some of the beautiful results of A. T. White and listen to, and do, some change ringing. We will close with the mention of a tie with change ringing, the evening of April 18, 1775 in Boston, and bell founding in America.

Lucy Dechéne is Professor of Mathematics at Fitchburg State College and Graduate Program Chair of the M.A.T. in Mathematics. She received a B.S. in mathematics (with a second major in organ performance) from the University of San Francisco. She studied carillon while finishing her M.S. and Ph.D. in mathematics at the University of California at Riverside. In 1977, she completed

the national requirements of the North American equivalent of diploma from a European carillon school. An active composer, organist and carillonneur, she has given carillon recitals in the U.S., Canada and Europe. She has mixed her mathematics with music many times, including giving recitals at the International Congress of Mathematicians at UC Berkeley and the AMS/MAA Summer Meeting in Toronto. As a member of the British and Irish Carillon Society, she knows many change ringers. Alas, she has never done change ringing herself.

Hotel Information

Lodging for the meeting will be available at hotels in Framingham (Best Western, and Red Roof Inn) and in Natick (The Travel Lodge). Each hotel is offering a special meeting rate for those who call and make reservations; to get the special meeting rate, please use the codes given below. Reserved room blocks will be held until October 31, 2003. Please call to make reservations as early as possible.

For further information about these hotels, please consult their websites.

However, you will need to call to get the special conference rate. Taxes are not included in the prices quoted below. There may be an extra charge for more than 2 people sharing a room.

Best Western, 130 Worcester Road (eastbound route 9), Framingham, MA 01702

Phone: (508) 872-8811

Fax: (800) 497-7555

Rate: \$79.95 per night for 2 beds

Special Rate Code: NES/MAA

20 rooms on hold. Free muffins and coffee. Indoor pool.

<http://www.bestwestern.com/>

Red Roof Inn, 650 Cochituate Road (route 30 at Mass Pike Exit 13), Framingham, MA 01701

Phone: (508) 872-4499, (800) 733-7663

Fax: (508) 872-2579

Rate: \$59.99 per night for 2 beds

Special Rate Code: B068NESMAT

30 rooms on hold <http://www.redroof.com/>

The Travel Lodge, 1350 Worcester Road (eastbound route 9), Natick, MA 01760

Phone: (508) 655-2222, (800) 564-7111

Rate: \$69.99 per night for 2 beds

Special Rate Code: NES/MAA

50 rooms on hold Free continental breakfast and transportation to Wellesley

College. Easy walk to shopping and movies. <http://www.travelodge.com>

Directions to Hotels from the College:

Exit the college through the route 135 entrance. At that light, take a left on to route 135. Take your first right onto Bacon Street, going under a railroad bridge. At the first light, take a right onto Oak Street. Where Oak Street intersects with route 9, take a left at the lights onto route 9 West.

For **Best Western**, stay on route 9 West for about 5 miles. Make a U-turn at the lights at the intersection with Ordway Street to be on route 9 East. The hotel will be on your right in front of a large Jordan's Furniture store.

For **Red Roof Inn**, stay on route 9 West for about 2 miles. Take the righthand exit marked SPEEN ST./MASS. PIKE (I-90)/NATICK. Continue following signs to the MASS. Pike by bearing right to stay on Speen Street, then turning left at the intersection with Route 30. The inn will be on the right side of the road just before the entrance to the Mass. Pike.

For **The Travel Lodge**, stay on route 9 West for about 2.8 miles. The lodge will be on your left and you can get there by making a left turn at a traffic light. The Natick Mall should be visible on your right shortly before you see the Travel Lodge

Directions to Wellesley College

For those of you finding driving directions over the internet, Wellesley College's address is 106 Central Street, Wellesley, MA, 02481

By Car

From the West

Take the Massachusetts Turnpike to Exit 14 (Weston). Go south on Interstate 95 (Route 128) for 1/2 mile to Route 16, Exit 21B. Follow Route 16 West for 2.9 miles to a stoplight (5-way intersection) in the town of Wellesley; go straight on Route 135 (West). At the third traffic light take a left into the main entrance of the College. See directions below for parking.

From the East

Take the Massachusetts Turnpike to Exit 16 (West Newton). Follow Route 16 West for 4.7 miles, using directions above.

From the North

Take Interstate 95 (Route 128) South to Exit 21B (Route 16 West). Follow Route 16 West for 2.9 miles, using directions above.

From the South

Take Interstate 95 (Route 128) North to Exit 21B (Route 16 West). Follow Route 16 West for 2.9 miles, using directions above.

Parking

After entering the college from the Rte 135 entrance, stay on the main campus road. You will pass construction on your right and then a grassy meadow on your left. After a short distance, you will see the large Science Center building on your left. Park in "Science Center Meadow" on your left (entrance marked by an orange sign).

By Train

From South Station or Back Bay, take the **Framingham/Worcester Commuter Rail** to the Wellesley Square stop. The commute is approximately half an hour. One-way fare is \$3 and you should buy your ticket at the station since there is a \$1 (\$2 during peak times) surcharge for purchasing tickets on the train. Exact change is not required.

For train schedules consult:

http://www.mbt.com/traveling_t/schedules_commuter_linedetail.asp?line=framingham.

From the Wellesley Square stop: Go up the stairs and turn left onto Crest Road; follow Crest a short distance. Take a right onto Central Street. Walk five minutes through town to a set of lights at the intersection of Central Street and Weston Road. Cross the street to the walk-in entrance to Wellesley College. Walk through the gate and to the end of the path. Take a right and you will soon see the Science Center on your left.

Pre-Registration

Fall 2003 NES/MAA Meeting, November 21-22, 2003

If you have questions about registration, you can contact Ann Trenk by phone, (781) 283-3140, or by email, atrenk@wellesley.edu.

Checks should be made to: **NES/MAA**

Mail the form on the next page to:

Professor Ann Trenk -- NES/MAA
Mathematics Department
Wellesley College
Wellesley, MA 02481

Please pre-register! You may register at the meeting if you wish; however, it would help plan the meeting if you pre-register by mail. It will save you money since the on-site registration fees are five dollars more than the pre-registration fees. Also, meals cannot be guaranteed unless reservations are received by November 13, 2003. **It may not be possible to buy tickets to the banquet or lunch at the meeting.** Spouses and guests are welcome at all meals.

PRE-REGISTRATION FORM(please type or print):

Name:

Name as you want it to appear on your name badge:

Affiliation:

Address:

Telephone:

E-mail:

Need Parking: (Check all that apply.)

Friday, November 21, 2003

Saturday, November 22, 2003

Special Needs Parking*

*Please contact Ann Trenk to make arrangements for Special Needs Parking.

Pre-registration Fee:

MAA Member (\$25.00)

Non-member (\$30.00)

Student or unemployed (\$10.00)

\$ _____

Meals

Reception and Banquet Friday (\$31.00 per person)

\$ _____

Luncheon Saturday (\$15.00 per person)

\$ _____

Total

\$ _____

Attending (Check all that apply)

Friday, November 21, 2003

Saturday, November 22, 2003

Participating in Section NeXT

Frank Ford
Newsletter Editor
Dept of Math/CS
Providence College
Providence, RI 02918