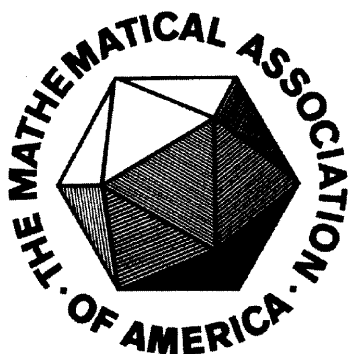


# **NORTHEASTERN SECTION**



## **NEWSLETTER**

### **FALL 2005**

**Volume 27**

**Number 2**

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

November. 18 and 19, 2005 (The Northeastern Section's Semi Centennial.)

University of New Hampshire (site of first Section Meeting)

Program Committee

Jim Tattersall, Providence College, RI, Chair

Frank Battles, Massachusetts Maritime Academy

Donna Beers, Simmons College, MA

Laura Kelleher, Massachusetts Maritime Academy

Lois Martin, Massasoit Community College, MA

Local Arrangements Committee

Erin Grinberg, University of New Hampshire, Chair

Samuel Shore, University of New Hampshire

Spring, 2006

Boston University

Program Committee

Local Arrangements

Spring Section Meeting

Bob Devaney, Boston University

Paul Blanchard, Boston University

Robert Devaney, Boston University

Emma Previato, Boston University

Gene Wayne, Boston University

**OTHER ACTIVITIES**

November 18, 2005

University of New Hampshire

Section NExT Meeting

March, 2006

Minicourse

Thomas Koshy, Framingham State College, MA

Site is Framingham State College.

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Dennis Luciano (dluciano@wnec.edu)

Paul Estes (ple@mail.plymouth.edu)

Dinner Meetings Coordinator:

Lucy Kimball (lkimball@LNMTA.bentley.edu)

Awards:

NES/MAA Award for Distinguished Teaching

(Nominations to Tommy Ratliff)

Web page:

access it via <http://www.maa.org> or directly with

<http://www.southernct.edu/organizations/nesmaa/>

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Section Project NExT Coordinator:

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(lhumphreys@ric.edu)

## **Message from the Chair.....Sarah Mabrouk**

Greetings! Fall is upon us and we are in the midst of another academic year. I hope that you have all marked Friday, November 18<sup>th</sup> and Saturday, November 19<sup>th</sup> on your calendars in anticipation of the Section's 50<sup>th</sup> anniversary meeting! Jim Tattersall and his committee, Frank Battles, Donna Beers, Laura Kelleher, and Lois Martin, have put together a great program for the meeting. Eric Grinberg is working hard at the University of New Hampshire to make the arrangements for the meeting during which Carl Cowen, Indiana University – Purdue University at Indianapolis, President of MAA, Karen Graham, University of New Hampshire, Ron Graham, University of California – San Diego, Past President of MAA, Carl Pomerance, Dartmouth College, and Peter Winkler, Dartmouth College, will give presentations. Dave Abrahamson, Rhode Island College, the winner of the 2005 NES/MAA Award for Distinguished College or University Teaching of Mathematics, will give the Distinguished Teacher Lecture, and Dusa McDuff, SUNY at Stony Brook, will give the Christie Lecture. Please be sure to check <http://www.southernct.edu/organizations/nesmaa/fall2005meeting.html>, for more information about the meeting.

Lisa Humphreys and Ockle Johnson have put together an interesting program for Section Next on Friday, November 18<sup>th</sup>. Karen Stanish, Keene State College, will give a presentation on teaching and grading proof for Abstract Algebra, and Jason Moliterno, Sacred Heart University, will give a presentation on teaching Calculus. The diverse topics will be beneficial to all and should be particularly valuable to new colleagues in the Section.

The fall meeting brings with it another opportunity for us to encourage our students to attend Section meetings and, possibly, to give either an undergraduate student presentation or a graduate student presentation. If you are doing research with undergraduates or if you are giving interesting assignments in your undergraduate classes, you could encourage your students to give presentations during the undergraduate student paper session. The third graduate student paper session will be held during the fall meeting, and I hope that those of you who are doing research projects with graduate students will encourage your students to make a presentation during the session. Making presentations during the undergraduate and graduate student paper sessions is a wonderful experience for our students and a great chance for them to share what they are learning with each other and with us.

In June, we enjoyed the hospitality of Bates College. The Bates College campus was beautiful, the presentations were wonderful, and the company was great!

Peter Wong and Brenda Pelletier did a wonderful job with the arrangements for the meeting. The Program Co-Chairs, Hema Gopalakrishnan, Sacred Heart University, and Bob Dollar, and their committee, Jason Moliterno, Sacred Heart University, and June Decker, Three Rivers Community College, arranged a enjoyable program that included presentations by Diego Benardete, University of Hartford, Robert Decker, University of Hartford, Jim Tattersall, Providence College, Ann Trenk, Wellesley College, Chris White, Castleton State College, and Brian Winkel, U.S. Military Academy as well as the Battles Lecture presented by Frank Morgan, Williams College. Thank you to everyone who contributed to this very pleasant meeting!

Arrangements for the spring 2006 meeting at Boston University (BU) are progressing. Paul Blanchard, Boston University, is working on the local arrangements, and Program Chair, Bob Devaney, Boston University, and his committee, Gene Wayne, Boston University, and Lois Martin, Massasoit Community College, are in the process of inviting the speakers. Since BU is easily accessible by car and by public transportation, why not encourage your students to attend the meeting and, possibly, to give student presentations?

Well, since our meeting locations are set up for a while, I have been working on finding Program Chairs and forming Program Committees for these meetings (as many of you have found out through emails and phone calls). If you are interested in participating on a Program Committee, please let me know. Serving on a Program Committee and serving as Program Chair or Co-Chair is great fun! This is a fun way in which to meet new folks and to contribute to the Section.

Please join me in congratulating Karen Schroeder, Bentley College, the winner of the 2005 Howard Eves Award! Karen is most deserving of this award having served the Section as Chair, Governor, local arrangements coordinator for meetings, Student Chapter Coordinator, and member of the National Committee on Student Chapters, and for her efforts in establishing the Regional Dinner Meetings and Minicourses as well as establishing guidelines for the Howard Eves Award. Thank you, Karen, for all that you have done for the Section – we greatly appreciate you! Thank you to Frank Battles, Laura Kelleher, and Jim Tattersall for their work as the selection committee for the Howard Eves Award.

I want to thank Mike Cullinane, Keene State College, for all his work as Co-Coordinator of Student Papers and to welcome Karen Stanish, Keene State College, as she joins Raimundo Kovac, Rhode Island College, as Co-Coordinator of Student Papers. Mike – thank you for all your efforts and work on sustaining the Undergraduate Student Paper Session. Karen – Welcome

aboard, and I hope that you will enjoy coordinating the Undergraduate Student Paper Session.

Last spring, we enjoyed a number of regional dinner meetings at Holy Cross, Framingham State College, Providence College, and Simmons College. I was delighted to be able to attend David Mazur's presentation, "The User's Guide to the P vs. NP Problem", at Simmons College, Frank Morgan's presentation, "Soap Bubble Geometry 200 BC to 2005 AD", at Holy Cross, and Bob Devaney's presentation, "Chaos Games and Fractal Images", at Framingham State College. I wish that I could have attended Jim Tattersall's presentation, "Nyctaginaceous Mathematics, Pontifical Geometry, and Barbeau Triangles", at Providence College. Jim – How do you pronounce Nyctaginaceous? If you are interested in hosting a dinner meeting, please feel free contact Lucy Kimball, the regional dinner meeting coordinator. Organizing a dinner meeting is great fun! Plans are already underway for the Fourth Annual NES/MAA Preskenis Dinner Meeting at Framingham State College – I hope that you will be able to join us.

We know that we have many fantastic teachers in our Section. So, why not recognize them by nominating them for the 2006 Distinguished Teaching Award? Nominations are now being accepted, and the deadline for nominations is January 15, 2006. A nomination packet consists of a typed completed Haimo nomination form that can be downloaded from the NES/MAA or MAA web site, a narrative of no more than five (5) typed double-spaced pages describing the nominee's background, experience, teaching style, special contributions, other teaching awards, and evidence of unusual/extraordinary achievement/success in teaching, five (5) one-page letters of recommendation (two (2) from present or former students, two (2) from colleagues, one of whom could be the department chair, and one (1) additional letter from anyone qualified to comment on extraordinary teaching success), and, if desired, no more than three (3) additional pages that document the nominee's teaching success. Completed nomination packets should be sent to Tommy Ratliff, Wheaton College, Department of Mathematics, Norton, MA 02766. Information about the 2006 NES/MAA Award for Distinguished College or University Teaching of Mathematics and about making a nomination can be found on the Section web site.

The members of the US team were all winners in the 46<sup>th</sup> International Mathematics Olympiad. Four of the six team members won gold medals and two won silver medals, and the team placed second in the 2005 competition; for the second year in a row, the team from China finished in first place, the United States' team finished in second place, and the Russian team finished in third place. Sherry Gong of Philips Exeter Academy, Exeter, NH, won a silver

medal. Hearty congratulations to the US team!

As I complete my term as Chair of the Section, I have so many folks to thank for their guidance, support, and encouragement. Thank you to all of you who have served as local arrangements coordinators for meetings, Bruce Burdick, Joel Silverberg, Frank Ford, Brigitte Servatius, Peter Wong, and Eric Grinberg, those of you who have served as Program Chairs/Co-Chairs for meetings, Julie Levandosky, Jason Molitierno, Suzanne Weekes, Hema Gopalakrishnan, Bob Dollar, and Jim Tattersall, and those who have served on Program Committees, Hema Gopalakrishnan, Ed Sandifer, Bogdan Vernescu, Peter Christopher, Jason Molitierno, June Decker, Laura Kelleher, Frank Battles, Donna Beers, and Lois Martin: I appreciate all the time, thought, care, and work that you have put in on behalf of the Section. Thank you to Tommy Ratliff for coordinating the Contributed Paper Session and to Rob Poodiack who is now coordinating the Contributed Paper Session, Mike Cullinane, Raimundo Kovac, and Karen Stanish for all their work coordinating the Undergraduate Student Paper Session, to Chris Aubuchon for coordinating the New Colleagues Presentations, and to Lucy Kimball for coordinating the Regional Dinner Meetings: your care and hard work coordinating these wonderful sessions and meetings is greatly valued. Thank you to Frank Ford for his hard work coordinating and reporting our Section news in the Newsletter and to Ross Gingrich for creating and maintaining our Section web site: your efforts to keep us informed and in touch are highly prized. Thank you to Lisa Humphreys and Ockle Johnson for their work in sustaining the Section NeXT program: thank you for this wonderful service to our new colleagues and to those of us who continue to learn and to grow in the art of teaching mathematics. Thank you to Dennis Luciano for his efforts to organize minicourses for the Section: Dennis – Tom Koshy’s minicourse on Catalan Numbers at Framingham State College looks promising (the V.P. likes the idea!) and I look forward to continuing to work with you as we coordinate the minicourse for February 2006.

Special thanks to those of you who have guided the Section and counseled me during my time as Chair. Thank you to Ockle Johnson, our Past Chair whose model as Chair I tried to follow, Laura Kelleher, our encouraging and tireless Governor, Ann Kizanis, our supportive and helpful Secretary/Treasurer, Kathy Bavelas, our helpful past Two-year College Representative, Lois Martin, our heartening and cheerful current Two-year College Representative, and Frank Ford, our caring and knowledgeable Newsletter Editor. Special thanks to Laura Kelleher, Frank Battles, Donna Beers, Jim Tattersall, and Frank Ford for their counsel, encouragement, perspective, and their example – thank you especially for your guidance on how to be Chair.

Thank you to all of you for giving me this wonderful opportunity to serve you and the Section. I have thoroughly enjoyed my term as Chair and I am glad to have the opportunity to continue to serve the Section as Past Chair and as the Coordinator of the Graduate Student Paper Session. I have had a wonderful time as Chair and I would love to do it again! I appreciate all the support that I have had from the Section as well as the support of my colleagues at Framingham State College. I hope that I have served you well and that I leave the Section in good shape as I turn it over to Tommy Ratliff.

Tommy, I hope that you will have a wonderful term as Section Chair. With all the fantastic folks in our Section to help you, I know that I leave the Section in capable hands.

**Message from the Governor ..... Laura Kelleher**

One of the decisions made at the Board of Governors Meeting in Albuquerque was to approve the scheduling of the Joint Mathematics Meetings for January 2102 for Boston. Be sure to take advantage of this wonderful opportunity to attend a national meeting in a local setting.

If you prefer to travel to exotic lands, consider joining the MAA on a Mathematical Study Tour. The 2005 trip exploring Mayan Mexico was a great success. Check out the wonderful pictures posted on the MAA website: [www.maa.org](http://www.maa.org). The 2006 tour to China will mix visits to a number of China's cultural sites with the opportunity to learn about the history of Chinese mathematics from some of the country's leading experts.

In her report to the Board of Governors, Christine Stevens described Project NExT as a program which has changed the face of *Mathfest* as it continues to nurture new members. This summer there were 68 new NExTers making the total more than 800 Project NExT Fellows since the program began in 1994. We in the Northeastern Section offer an especially warm welcome to the national Project NExT Fellows for 2003-2004 who have faculty appointments in the Northeastern Section:

Hansun To, Worcester State College  
Angela Vierling-Claassen, Harvard University  
Amy Wangsness, Fitchburg State College

As reported last Spring, the MAA is committed to a continuing process of strategic planning. Preliminary reports were given to the Board of Governors on the areas identified for consideration during the first round: The American Mathematics Competitions, Revenue, and Professional Development. Final



reports in these areas are expected within the next six to twelve months. The issues to be considered in the next stage of strategic planning are Governance, Membership, and Student Activities.

I hope I will see you at some of the upcoming national and sectional MAA activities. The next Joint Mathematics Meetings will be held January 12-15, 2006 in San Antonio, Texas. The Joint Meetings always offer interesting and informative programs. You might also plan to participate in next summer's *Mathfest* which will be held August 10-12, 2006 in Knoxville, Tennessee. On the local level, a particularly noteworthy event will be the celebration of the Northeastern Section's Golden Anniversary. This will be held November 18-19, 2005 at the University of New Hampshire, the site of the section's first meeting. Come and join us to meet with colleagues and to share the excitement of what is happening in the world of mathematics and mathematics education.

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

In the spring newsletter, I reported a balance of \$14,342.53. Since that time, we had the successful spring meeting at Bates College. The expenses from the spring meeting were \$2,569.00, while the revenue from meeting registrations was \$2,898.00. The expenses for the printing and postage of the spring newsletter for that meeting totaled \$1,396.70. We also received our yearly subvention check for \$2,800.00 from the national office this summer. Now since we have been carrying a fairly high balance these past few years, and since the financial institution at which I do business now has a CD for business accounts, I opened an 11-month CD in the amount of \$12,000.00 this summer. Over the last couple of months, it has earned \$44.15 in interest. Our present balance is \$16,118.98.

Our section has been saving money over the last few years. In fact, our balance this fall is \$882.55 more than last year at this time. As a section, we should think about what types of projects we would like to do in the future with some of our funds.

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 Northeastern Section's Semicentennial at the University of New Hampshire this fall, where I will update you further on our finances. I wish you all a very enjoyable semester!

## **Two-year College Representative's Report ..... Lois Martin**

The 31st annual AMATYC conference will be held in San Diego on November 10-13. The theme of the meeting is "Catch the Wave" and features keynote speaker Ron Graham. Phil Mahler, Middlesex Community College, will be leaving the Board after nine years, having served as Northeast Regional Vice President, President-Elect, President, and Past President. Jack Keating, Massasoit Community College, is also leaving the Board, after six years as Northeast Regional Vice President.

MATYCONN's Fall Meeting and Workshop takes place on Friday, October 21, at Three Rivers Community College, Mohegan Campus, Norwich, CT. The meeting features Problem Solving with Ray McGivney.

NEMATYC 2006, Building a Better Math Class, will be held on April 21-22, 2006, at Southern New Hampshire University, Manchester NH. See the web site [www.NEMATYC.org](http://www.NEMATYC.org) for a Call for Presenters.

Two Massachusetts faculty have been chosen to be Project ACCCESS fellows. Marianne Rosato, Massasoit Community College, and Curtis Mitchell, Greenfield Community College, join Anne O'Shea, North Shore Community College, a fellow from last year. Project ACCCESS is a mentoring and professional development initiative for new two-year college faculty. Funded by the ExxonMobil Foundation, the project is jointly sponsored by AMATYC and the MAA.

## **From the Newsletter Editor ..... Frank Ford**

Come join us at the University of New Hampshire in November as we celebrate our 50th anniversary as a Section. Jim Tattersall and his committee have prepared an outstanding program. The invited speakers are Carl Cowen, Karen Graham, Ron Graham, Dusa McDuff, Carl Pomerance, and Peter Winkler. Our Distinguished Teacher Award winner, Dave Abrahamson, will also speak. Don't miss this meeting.

The Executive Committee at Bates in June approved the report of the Howard Eves Award committee. Karen Schroeder is the winner of the Howard Eves Award for outstanding service to the Section. The award will be presented at the Fall meeting.

### **Graduate Student Papers Presented at the NES/MAA Spring 2005 Meeting**

**Dylan Maxwell Reilly, Western Connecticut State University**

*Linear Programming in Nonlinear Mechanics*

Faculty Sponsor: Lydia Novozhilova, Western Connecticut State University

**Jacob Gagnon, University of Massachusetts at Amherst**

*Ranking the Invisible Web*

Faculty Sponsor: Panos Kevrekidis, University of Massachusetts at Amherst

### **Undergraduate Student Papers Presented at the NES/MAA Spring 2005 Meeting**

**Jennifer Henley, Bates College**

*Bovine Encephalopathy (Mad Cow Disease) Meets Bifurcation Theory*

**Michele Lee, Williams College**

*The Isoperimetric Problem in Gauss Space*

**Elizabeth Adams, Williams**

*Double Bubbles in gaussia Space*

**Diana Davis, Williams College**

*The Hutchings Function in Gauss Space*

**Regina Visocchi, Williams College and Michigan State University**

*Bubbles in Halfspaces and Quarterspaces*

### **Contributors Papers Presented at the NES/MAA Spring 2005 Meeting**

**John Glaus, The Euler Society**

*Eulogies for Euler by Condorcet and Fuss*

**Bob Gray, Framingham, MA**

*Which Digits are Needed for Transcendence?*

### **Karen Schroeder wins the Howard Eves Award for Meritorious Service to the Section**

The Howard Eves Award for Meritorious Service is given by the Northeastern Section every five years to an individual for outstanding service to the Section. It is named after the co-founder and first Chairperson of the Section, Howard Eves of the University of Maine. Karen J. Schroeder of Bentley College has been selected as the fourth recipient of this award. It will be presented to Karen at the Fall 2005 meeting, the fiftieth anniversary of the Section.

Karen has served the NES in many capacities. She was Chair of the Section from 1989 to 1991 and Governor from 1994 to 1997. In 1987 she was in charge of local arrangements for the Fall Meeting, which was one of the best attended meetings of the Section. She was instrumental in the establishment of both the Section's Dinner Meetings and Minicourses and served on the committee to

revise the Section bylaws as well as the committee that drew up the guidelines for the Howard Eves Award. She served the Section as Student Chapters Coordinator, as well as being a member of the national MAA Committee for Student Chapters.

The selection committee for this award was Frank P. Battles, Laura L. Kelleher and Jim Tattersall.

## **NES/MAA IN THE 90'S**

## **Frank Battles**

(Frank Battles of Massachusetts Maritime Academy wrote this at the request of the NES Executive Committee. Ockle Johnson of Keene State College in New Hampshire is writing a history of the Section in the years 2000-2005 and will have that ready at the Fall meeting. It will appear in the Spring Newsletter. These two histories complete the history of the Section which was begun by Jim Tattersall of Providence College. The full history will be on the Section web site when it is completed. – The editor.)

The 1990's saw the addition of many programs to the menu of offerings of the Section. In April of 1991 the Section held its first minicourse: "Using History in Teaching Calculus" given by V. Frederick Rickey and held at Bentley College. The original intention of these minicourses was to bring to the Section outstanding minicourses first presented at the national meetings. Minicourses were offered each following year until 1998. In the spring of 1992, the first round of regional dinner meetings were held, the very first one at Worcester Polytechnic Institution with the dinner talk given by Gil Strang. These were continued through the 90's and have provided a mechanism for networking with one's colleagues on a regional basis. This concept sparked a lot of interest from other Sections when we presented this concept at the national Section Officers Meeting. At the Spring Meeting of 1997 held at Merrimack College we had as part of the program a session for "Future Colleague" presentations and at the Fall of 1997 meeting held at Western New England College we had the first session of "New Faculty" presentations. As a result younger mathematicians have become more involved in Section activities. At the Spring Meeting of 1998 held at Keene State the first Battles Lecture was given by Jim Tattersall. This annual feature of the Spring Meeting is named for Frank Battles who served as Newsletter Editor from 1988-1998. Early in 1997 the Section's web page first appeared with Ross Gingrich of Southern Connecticut State University serving as Webmaster.

Several interesting joint efforts of the Section took place in the 90's. On October 30, 1993, the MAA/NES and Bentley College cosponsored a Student Career Conference, "Mathematics Opens Doors to the World". Ten workshops, each run by an expert in their field, were offered. The areas covered included

medicine, computers and technology, banking, operations research, teaching, information systems, statistics, telecommunications, environmental sciences, and actuarial sciences. On October 21, 1994 the Section, in conjunction with the Mathematics and Music Departments of Regis College, presented "Mathematical Aspects of the Music of Bach". This was given by Victor Hill IV, the Thomas T. Read Professor of Mathematics at Williams College.

The Section's "Distinguished College or University Teaching Award" was first given at the Spring of 1992 meeting at Merrimack College to Frank Morgan of Williams College. The sectional winner is then eligible for the corresponding national award and five of the eight Section awardees in the 90's went on to also receive the national award. The National MAA Certificate of Meritorious Service, which is given every five years, was awarded to Jim Tattersall of Providence College in 1972 and to Frank P. Battles and Laura L. Kelleher of Massachusetts Maritime Academy in 1997. The Section introduced the Howard Eves Award to honor those who had been of great service to the Section but did not receive the previously mentioned award. The first recipient was Howard Eves (1990), followed by Clayton Dodge (1995) both of the University of Maine.

June of 1996 marked the end of the annual section short course at the University of Maine which had been a popular weeklong event since it was started in 1979 by Don Small and Grattan Murphy. For many years, the running of this course was under the very capable direction of Clayton Dodge. These courses provided us with an opportunity to learn some mathematics and meet with a distinguished mathematician on the beautiful campus of UMaine in Orono. The social highlights included an afternoon at Acadia National Park followed by a pizza party back on campus and a Thursday night lobster bake.

We were most fortunate in the 90's to have many talented and creative Section Officers. More than at any other time in the Section's history, women played a very prominent role. The first three Section Chairs during this time period were Karen Schroeder of Bentley College (1989-1991), Laura Kelleher of Massachusetts Maritime Academy (1991-1993) and Donna Beers of Simmons College (1993-1995). Karen went on to serve the Section as Governor from 1994 to 1997 and Laura and Donna each became Governor in the next decade. Their outstanding leadership was followed by Rick Cleary of St. Michael's College (1995-1997) and Frank Ford of Providence College (1997-1999). We were lead into the next decade by Ed Sandifer of Western Connecticut State University. Don Small of Colby College finished up his three year term as Governor in 1991. In addition to Karen Schroeder, Dennis Luciano of Western New England College served two terms as Governor: 1991-1994 and 1997-2000. Our growing treasury and communications with the National Headquarters were ably handled by Laura Kelleher, Premjit Singh of Fitchburg State College, Marilyn Durkin of Bentley College, and Betsey Whitman of

Framingham State. Our Two-Year College Representatives were Joe Menard of Community College of Rhode Island, Helene Savicki of Dean Junior College, Miguel Garcia of Gateway Community Technical College, Phil Mahler of Middlesex Community College and Kathy Bevelas of Manchester Community Technical College. Frank Battles, Frank Ford and Barry Schiller of Rhode Island College served as Newsletter Editors.

Section Meetings were held in November and June with ten in Massachusetts, three in Rhode Island, three in Connecticut, two in Maine, one in New Hampshire and one in Vermont. Our 40th anniversary meeting was hosted by Salem State College in 1995. We met twice at Merrimack College which gives this school the distinction of having hosted the most section meetings: five. Our most elegant meeting site was certainly the one at Salve Regina University in Newport, RI. The best attended meeting for the 90's was held at Framingham State College with 258 registrants. Our last meeting of the 90's was held at Bradford College whose closing was announced the following week.

We had many outstanding lectures at our Section Meetings in the '90's. The Christie Lectures given at the Fall Meeting were presented by John Conway, Rodica Simion, Peter Hilton, Jim Tattersall, Robert Rosenbaum, Doris Schattschneider, Roger Cooke, Michael Starbird, Gilbert Strang and Charles Hadlock. The Battles Lecture instituted in 1998 was given by Jim Tattersall and Robert Devaney. Other notable presenters include Herb Wilf, Dan Kleitman, Marjorie Senechal, Gerald Alexanderson, William Dunham, Ingrid Daubechies, Martha Siegel, James Leitzel, Ben Fusaro, John Ewing, H.S.M. Coxeter, Thomas Banchoff, Philip Davis, Joe Gallian, Margaret Cozzens, Carl Pomerance, Laurie Snell, Colin Adams, Persi Diaconis, Philip Uri Treisman, Ken Ross, Florence Fasanelli, and Ed Dubinsky.

The Northeastern Region was a popular choice for summer national meetings in the 90's. The Joint National Meeting was held at the University of Maine (Orono) in 1992 and at the University of Vermont in 1995. At the meeting at the University of Maine, Karen Schroeder dedicated The Howard Eves Room in the Washington headquarters of the MAA and presented a plaque and doorknob to Clayton Dodge, representing Howard Eves. The summer MAA Mathfest was held in Providence in 1999. In addition, the annual meeting of the American Mathematical Association of Two-Year Colleges was held in Boston in November of 1993.

Our Section bylaws were carefully looked at by a committee consisting of Dennis Luciano, Jim Tattersall and Karen Schroeder. The major changes proposed were to form an advisory council and add the Newsletter editor to the Executive Committee. These changes were approved by the membership and the National office in 1994.

The MAA celebrated its 75th anniversary in Columbus, Ohio in 1990. In a memorial parade, each section carried a banner indicating the section name and

year of its founding. Ours was carried by Don Small. This banner was then on prominent display at all of our section meetings throughout the nineties. Each section was asked to write a history of the section. Jim Tattersall undertook this task for our Section and wrote a decade by decade history from the 50's through the 80's. Clayton Dodge chipped in a biography of Howard Eves, one of the founders of our Section; Jim Ward of Bowdoin College gave us a biography of Dan Christie for whom the Christie Lecture is named; and Don and Shirley Blackett of Boston University and Northeastern University respectively gave us a personal history of the Section. This and other historical information regarding the Section is available on the Section's website.

## From the Colleges

**Amherst College** (reporter **Dan Velleman**) Amherst College has hired **Katherine Tranbarger** whose specialty is statistics with a Ph.D. from UCLA. **Jim Denton** retired at the end of last year. **Dan Velleman** will become Editor-Elect of the American Mathematical Monthly in January 2006, and will become Editor in January 2007.

**Brown University** (reporter **Tom Banchoff**) Brown has hired a new full professor, **Richard Schwartz**, who received his Ph.D. with William Thurston at Princeton and who came to Brown from the University of Maryland. His research and teaching center around topology and geometry and his work complements the interests of another recent hire **Jeff Brock**, a Ph.D. from the University of California who held a post-doctoral position at the University of Chicago before coming to Brown.

**University of Connecticut** (reporter **Gerald Leibowitz**) The University of Connecticut has hired Peter **Nicholls**, a mathematician, as Provost, Executive Vice-President for Academic Affairs, and Professor of Mathematics. He has his degree from Cambridge University and has taught at Northern Illinois University, Kansas State University, and Colorado State University.

**Framingham State College** (reporter **Sarah Mabrouk**) **Joyce Cutler** was promoted to Associate Professor effective September 1, 2005. **Victoria Sapko** joined the Mathematics Department at Framingham State College in Fall 2005. Before coming to Framingham, she worked at Georgia Southwestern State University. Victoria earned her Ph.D. and her M.S. from the University of Nebraska – Lincoln and her B.A. from Concordia College.

**Massachusetts Maritime Academy** (reporter **Frank Battles**) Professor **Eugene McCarthy** retired after teaching mathematics at the Academy since 1982. He had taught previously at Boston State College for many years. Dr. **Muge Kanuni**, who came to the Academy after completing her Ph.D. at UConn, left to return to Turkey. Dr. **Raul Aguilar** joined the faculty this fall. He had previously taught at Rhode Island College.

**Massasoit Community College** (reporter **Lois Martin**) The Mathematics Department hired 3 new faculty in the last year, the first new hires since 1986, - **Marianne Rosato**, **Jane DeVoe** and **Aziza Hina**. The **Massasoit Community College Mathematics Team** captured the Northeast Region's title in MATYC's Student Mathematics League for the second consecutive year. Massasoit student **Alexei Popov** took first place in the Northeast Region's Individual Competition.

**Williams College** (reporter **Edward Burger**) Williams has hired **Carsten Botts**, a statistician from Iowa State University; **David Craft**, a visiting assistant professor of mathematics; and **Mihai Stoiciu**, a mathematician from California Institute of Technology.

**Yale University** (reporter **George Seligman**) **Bruce Kleiner**, formerly of the University of Michigan, Ann Arbor, has joined the department as Professor. Visiting Professors are **Douglas Lind**, of the University of Washington, and Jacek Szmigielski of the University of Alberta. Professor **Christoph Thiele** of UCLA will be on hand as Visiting Fellow during part of the fall term. New Gibbs Assistant Professors are: **Philip Gressman**, **Paul Hacking**, **Matvei Libine**, **Yoel Shkolinski** (appl. math.), **Amit Singedr** (appl. math.), **Mark Tygert** (appl. math.) and **Kevin Wortman**. As of July 2005, Professors **Serge Lang**, **Benoit Mandelbrot** and **Ilya Piatetski-Shapiro** had retired with the title Professor Emeritus. **Serge Lang** died in Berkeley on September 12, 2005. Professors **Mandelbrot** and **Piatetski-Shapiro** continue as Senior Research Scientists. In the summer of 2005, Professor Mandelbrot was awarded the Sierpinski Prize by the Polish Mathematical Society. Professor **Gregory Margulis** received a Wolf Prize in Mathematics in Israel in May, 2005. Professor **Roger Howe** is on leave at State University of New York at Stony Brook, working on the training of mathematics teachers for the schools. A conference honoring him is to be held in Singapore in January, 2006.

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

The Northeastern Section is continuing a Section NExT program for new and relatively new colleagues at this year's fall 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.

**Friday, November 18**

**12:00 - 1:00 p. m.**

**Lunch and Group Discussion**

**1:00-1:30 p. m.**

**Abstract Algebra: Teaching and Grading Proof**

Karen Stanish, Keene State College

**1:30-2:00 p. m.**

**Teaching the Big Picture in Calculus**

Jason Moliterno, Sacred Heart University

If you are interested, please contact Lisa Humphreys of Rhode Island College at [LHumphreys@ric.edu](mailto: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.)

**NES/MAA Award for Distinguished College/University Teaching of Mathematics**

There is no packet of forms to fill out in order to make nominations for the 2006 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 *2006 NES/MAA Award for Distinguished College of University Teaching of Mathematics* are due by **January 15, 2006**, 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 as well as a list of past recipients of the award can be found on the Sections Awards page of the NES/MAA web site,

<http://www.southernct.edu/organizations/nestmaa/sectionawards.html>; more detailed information about the Section award, eligibility, and nomination process can be found on the MAA website,

[http://www.maa.org/Awards/CFN\\_Template.html](http://www.maa.org/Awards/CFN_Template.html). 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](http://www.maa.org/Awards/Haimo_EGN.pdf) (general guidelines/eligibility information)
- [http://www.maa.org/Awards/Haimo\\_NF.pdf](http://www.maa.org/Awards/Haimo_NF.pdf) (Nomination Form).

The *typed* completed Nomination Form must accompany the nomination packet that you create 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.

The Nomination Form, [http://www.maa.org/Awards/Haimo\\_NF.pdf](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 Tommy Ratliff at Wheaton College before the **January 15, 2006** deadline. Once you have mailed the packet to Tommy Ratliff  
Wheaton College  
Department of Mathematics  
Norton, MA 02766,  
please call him, (508) 286-3968, or email him, [tratliff@wheatonma.edu](mailto:tratliff@wheatonma.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.

### **Call for Undergraduate 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. Send an abstract by email to Raimundo Kovac, [RKovac@ric.edu](mailto:RKovac@ric.edu), or Karen Stanish, [kstanish@keene.edu](mailto:kstanish@keene.edu). Abstracts are (603) 358-2587

### **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 Rob Poodiac at [rpoodiac@norwich.edu](mailto:rpoodiac@norwich.edu) or (802) 485-2339. Email submissions are preferred, but you may also send a typed submission to Rob Poodiac; Department of Mathematics; Norwich University; 158 Harmon Drive; Northfield, VT 05663. The deadline for submission of abstracts is November 1.

### **Call for Graduate Student Papers**

**GRADUATE STUDENTS**, full-time and part-time, are invited to present papers on topics in mathematics, statistics, or computer science. Graduate students at any stage of their graduate work are welcome to give a presentation during the

session. The presentations, approximately fifteen (15) minutes in length, can be given on expository work, research projects, variations on intriguing proofs, interesting problems in mathematics, work derived from periodicals, employment experiences, summer/independent research experiences, or parts of or work related to Master's or Doctoral research projects. The registration fee and the cost for Saturday lunch will be waived for one graduate student presenter per paper. Interested graduate students should contact Sarah Mabrouk, [smabrouk@frc.mass.edu](mailto:smabrouk@frc.mass.edu), for more information. The deadline for submission is Friday, November 4th. Details are available on the Section web site, [http://www.framingham.edu/faculty/smabrouk/NES\\_MAA/Grad/](http://www.framingham.edu/faculty/smabrouk/NES_MAA/Grad/).

### **Call for New Colleagues Talks**

New faculty participating the Northeastern Section Fall MAA meeting are invited to submit papers for the New Faculty session. 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 computers with projection capabilities may be available.

Please send a 25 word or less abstract, any special equipment needs you may have and your mailing address to Chris Aubuchon at [aubuchoc@badger.jsc.vsc.edu](mailto:aubuchoc@badger.jsc.vsc.edu). Email submissions are preferred, but you may also send a typed submission to

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 of the MAA**  
**UNIVERSITY OF NEW HAMPSHIRE, DURHAM**  
**50TH ANNIVERSARY MEETING OF NEW/MAA**  
**Northeastern Section NExT Program**

**Friday, November 18, 2005**

12:00 - 1:00 p.m.

**Lunch and Group Discussion**

1:00 - 1:30 p.m.

**Abstract Algebra: Teaching and Grading Proof**

Karen Stanish, Keene State College

1:30- 2:00 p.m.

**Teaching the Big Picture in Calculus**

Jason Moliterno, Sacred Heart University

**NES/MAA 50th Meeting**

**Friday, November 18, 2005**

1:00 – 6:00 p.m.

**Registration**

1:00 – 3:00 p.m.

**Executive Committee Meeting**

3:00 – 3:50 p.m.

**Connections Between Mathematics and Biology**

Carl Cowen, Indiana University Purdue University at

Indianapolis

4:00 – 4:50 p.m.

**The Mathematical Preparation of Teachers: History, Issues, and Challenges**

Karen Graham, University of New Hampshire

5:00 – 6:00 p.m.

**Undergraduate Student Papers**

6:00 – 8:00 p.m.

**Dinner and Opening Remarks**

8:00 – 8:50 p.m.

**Primal Screens**

Carl Pomerance, Dartmouth College

**Saturday, November 19, 2005**

8:00 – Noon

**Registration**

8:00 – 9:00 a. m.

**New Colleagues Presentations**

8:00 – 9:00 a. m.

**Contributed Paper Session**

9:00 – 9:50 a. m.

**Graduate Student Paper Session**

9:50 – 10:20 a. m.

**Graduate Reception**

9:50 – 10:20 a.m.

**Break**

10:20 – 11:20 am

**Christie Lecture: Title to be announced**

Dusa McDuff, SUNY at Stony Brook

11:30 a. m. – 12:20 p. m.

**Distinguished Teaching Award Lecture: Take Me Out To The Simplex**

Dave Abrahamson, Rhode Island College

12:20 – 12:40 p. m.

**Business Meeting**

12:30– 1:30 p. m.

**Lunch**

1:40 – 2:30 p. m.

**Title to be announced**

Ron Graham, University of California at San Diego

2:40 – 3:30 p. m.

**Submodular Percolation**

Peter Winkler, Dartmouth College

## Abstracts/Biographies

**Title:** Connections Between Mathematics and Biology

**Speaker:** Carl Cowen, Indiana University - Purdue University at Indianapolis (IUPUI)

**Abstract:** In this talk, Dr. Cowen will outline some of the research areas in the emerging collaborations between mathematical and biological scientists. In addition, Dr. Cowen, who began his study of the mathematics of neuroscience in 2002-03 at the Mathematical Biosciences Institute at Ohio State University and who worked in 2003-04 as a junior post-doc in the lab of Prof. Christie Sahley in the Purdue University Biology Department, will illustrate the connection between mathematics and neuroscience with a discussion of the Pulfrich phenomenon, an experiment that helps illuminate how the brain processes visual images. There are few mathematical or biological prerequisites for this discussion.

**Biography:** Carl Cowen was born and raised mostly in Indiana. He was educated at Hanover College, Indiana University, and the University of Warwick (England), and received his PhD in pure mathematics from the University of California, Berkeley. He was at Purdue University from 1978 to 2004, but before that he had a post-doc position at the University of Illinois and had teaching experience in junior high school and small colleges. He was Director of Purdue's Actuarial Science Program from 1992 to 1997 and was Head of Purdue's Mathematics Department from 1997 to 2002. Since August 2004, he has been Dean of the School of Science at IUPUI (Indiana University - Purdue University at Indianapolis) where he has had the chance to promote research and education at this rapidly developing young institution. In addition to his academic work, he has been involved in the governance of each of the three major mathematical organizations, and he is currently serving as President of the Mathematical Association of America.

For many years, his primary research interests have been in operator theory and complex analysis, specifically, studying operators on a space of analytic functions given by composition with fixed functions. His primary pedagogical interests have been in teaching linear algebra, both to math majors and to engineering students. He has directed about 25 undergraduate students in research mostly on topics in linear algebra, and he has supervised several PhD students.

In 2002-03, he spent a sabbatical year at the Mathematical Biosciences Institute at The Ohio State University where he began changing his research attention to the mathematics of neuroscience. In 2003-04, he worked with biologists at

Purdue to develop a mathematical model of parts of the sensory system of the medicinal leech and also to develop and teach a course on computational neuroscience for senior math and biology majors.

**Title :**The Mathematical Preparation of Teachers: History, Issues, and Challenges

**Speaker:** Karen J. Graham, University of New Hampshire

**Abstract:** The mathematical preparation of teachers continues to be an integral part of undergraduate programs at a majority of mathematics departments in US colleges and universities. The broader mathematics community has a long history of support for strong mathematics content preparation for prospective teachers. However, issues remain about what mathematics teachers at various levels should know and how they should come to know it. This talk will present a brief history of the preparation of mathematics teachers in the US, an overview of current issues and research in the area of mathematics teacher preparation, and challenges that we face.

**Biography:** Dr. Karen J. Graham is Professor of Mathematics in the Department of Mathematics and Statistics and Director of the Joan and James Leitzel Center for Mathematics, Science, and Engineering Education at the University of New Hampshire (UNH). She received her Ph.D. in Mathematics Education from UNH in 1986. She taught mathematics in Pine Plains NY prior to beginning work on her doctorate and taught at Western Michigan University, Kalamazoo, MI prior to joining the faculty at UNH in 1987. Dr. Graham also directs the UNH Master of Science for Teacher (MST) in Mathematics program. Her professional and scholarly interests include the teaching and learning of calculus, mathematics education reform based research, and mathematics teacher development. Dr. Graham has served as the project director of many state and federally funded projects. She has presented numerous workshops at local, state, regional, and national conferences. She has served on several national and regional committees/professional boards and as president of the NH Association of Teachers of Mathematics and the Association of Teachers of Mathematics in New England. In addition she has served as a documentation consultant on several national research projects designed to explore mathematics education reform efforts, the QUASAR (Quantitative Understanding: Amplifying Student Achievement and Reasoning) Project, the R3M (Recognizing and Recording Reform in Mathematics Education) Project, and the CCH Evaluation and Documentation Project. In 1999, Dr. Graham received the Richard H. Balomenos Mathematics Education Service Award from the NH Association of Teachers of Mathematics.

**Title:** Primal Screens

**Speaker:** Carl Pomerance, Dartmouth College

**Abstract:** Prime numbers, the very building blocks of the integers, remain an enigma. Yet we make progress, sometimes with the energetic aid of undergrads. This non-stressful talk will highlight recent progress and some of the many unsolved problems still on our plates.

**Biography:** Carl Pomerance received his B.A. from Brown University in 1966 and his Ph.D. from Harvard University in 1972 under the direction of John Tate. Currently he is a mathematics professor at Dartmouth College, after previous positions at the University of Georgia and Bell Labs. A number theorist, Pomerance specializes in analytic, combinatorial, and computational number theory, with applications in the field of cryptography. He considers the late Paul Erdos as his greatest influence.

**Title:** *Symplectic Topology Today*

**Speaker:** Dusa McDuff, SUNY at Stony Brook

**Abstract:** The past twenty five years has seen striking advances in our understanding of symplectic topology. This subject studies the topological and geometric structures underlying Hamilton's formulation of classical mechanics. The structures in question are global, and it took many years to find tools with which to see them. In the 1980s several different strands of inquiry came together, crystallizing in foundational theorems about the nature of symplectic space and the canonical transformations that preserve its structure. The tools initially came from variational calculus and differential geometry but, fed by ideas from physics, have now been extensively developed, leading to new insights about global Hamiltonian systems as well as the structure of 3 and 4 dimensional manifolds. This talk will describe some of the main results and techniques, and aims to give a idea of where the subject stands now.

**Biography:** Dusa McDuff grew up in Scotland. She obtained her Ph. D. from the University of Cambridge, U.K., in 1971. After lectureships at the universities of York and Warwick, she came to Stony Brook in 1978, where she is now a Distinguished Professor. She is a Fellow of the Royal Society (London) and a member of the National Academy of Sciences. For the past twenty years she has worked in the area of symplectic topology.

**Title:** Take Me Out To The Simplex

**Speaker :** Dave Abrahamson, Rhode Island College

**Abstract:** Over the last few decades, a growing number of questions in the world of baseball have drawn the attention of mathematical modelers. We will survey some of the results, including the "Pythagorean prediction" of a team's record, the relative importance of various offensive statistics, and a recent use of linear programming to study the outcomes of the annual Cy Young Award



voting.

**Biography:** Dave Abrahamson received his B.S. in Mathematics from Harvey Mudd College and his Sc.M. and Ph.D. in Applied Mathematics from Brown University. Carlton Fisk's Game 6 homer made him late with a real analysis assignment, and he later had to proofread his dissertation during Fernandomania. He is celebrating his twentieth year at Rhode Island College, during which time the Red Sox have won the World Series once.

**Speaker:** Ron Graham, University of California, San Diego (UCSD)

**Title:** Packing Discs in the Plane

**Abstract:** A classical problem in geometry deals with finding the densest packings of equal discs in the Euclidean plane. While the solution to this problem has been known for more than a hundred years (hexagonal is best), there are many variations of this problem which are completely unsolved. In this talk, I will describe some of what is currently known and what is still unknown.

**Biography:** Ron Graham is one of the world's best-known mathematicians and computer theorists. He pioneered worst-case analysis in scheduling theory, online algorithms, quasi-randomness, and Ramsey Theory. He holds the Irwin and Joan Jacobs Endowed Chair in Computer and Information Science at the University of California at San Diego (UCSD), and is Chief Scientist of the California Institute for Telecommunications and Information Technology. He joined the UCSD faculty in 1999, after a 37-year career with AT&T. He received his Ph.D. in mathematics from the University of California at Berkeley in 1962. From 1962-1995, he was director of information sciences at AT&T Bell Labs, and from 1996-99 Chief Scientist of AT&T Labs. In 2003, Graham won the American Mathematical Society's annual Steele Prize for Lifetime Achievement. The citation noted that he "has been one of the principal architects of the rapid development worldwide of discrete mathematics in recent years. ... [and] his talks and his writings have done much to shape the positive public image of mathematical research in the USA, as well as to inspire young people to enter the subject."

Dr. Graham is in the Guinness Book of World Records for using (in 1977) the largest number ever in a mathematical proof, now known as "Graham's number." He is the Treasurer of the National Academy of Sciences, a Fellow of the American Academy of Arts and Sciences, a fellow of the American Association for the Advancement of Science, a past President of the AMS, and Past President of the MAA. He is a highly skilled juggler and trampolinist, and is a past president of the International Jugglers Association. In addition to the Steele Prize, he has won numerous awards in the field of mathematics, including the Polya Prize in Combinatorics from SIAM, the Euler Medal from the Institute of Combinatorics and Its Applications, the Lester R. Ford Award from the MAA, and the Carl Allendoerfer Award from the MAA.

**Title:** Submodular Percolation

**Speaker:** Peter Winkler, Dartmouth College

**Abstract:** Suppose you need to upgrade a computer system, one component at a time. Is it possible that you may have to downgrade a component at some point, in order to keep things running smoothly? More generally, when can a process be designed so as to avoid making backward steps? We examine the case where the process can be modeled as a path through a (modular) lattice, and the object is to avoid large values of some submodular function. In this case it turns out that there is always a chain, i.e. a path with no backward moves, which is as good as any path. Moreover, this chain beats any path in a novel order on real sequences which we call the "worm order". Joint work (from last spring at MSRI) with Graham Brightwell (LSE), now continuing with Lizz Moseman (Dartmouth).

**Biography:** Peter Winkler is Professor of Mathematics and Computer Science, and Albert Bradley Third Century Professor in the Sciences, at Dartmouth. His research lies primarily in combinatorics, probability and the theory of computing; he also collects puzzles, both mathematical and mechanical, and is the author of *"Mathematical Puzzles: A Connoisseur's Collection"* (AK Peters, 2004). In some circles, Prof. Winkler is best known as the inventor of cryptologic techniques for the game of bridge, which have now been declared illegal for tournament play in most of the Western world.

## Hotel Information

We have room blocks available in several area hotels, with special conference discounts. Generally, hotels expect conference bookings to be paid one month before the event, hence mid October, 2005. Be sure to mention the MAA meeting when calling any of the hotels listed below. Hotels in Durham are generally within walking distance from campus (most are very close, the Pines requires a long walk). Hotels in or near Portsmouth are within easy driving distance from campus (20 minutes).

### **Hotels in or near Durham, NH:**

**The Hotel New Hampshire** A new hotel which just opened in August, 2005. The name is derived from a John Irving novel of the same name. Located at 2 Main St., next to Durham's historic district and within walking distance of campus. About 68 rooms are included in the conference block (43 doubles, 23

queens and 2 suites) , with a price of \$89/night. 2 Main Street Durham, New Hampshire 03824 (603) 868-1234

**The New England Center** a hotel and restaurant located on a private wooded setting on the UNH campus, at 15 Strafford Rd. About 59 rooms are blocked, with a price of \$99/night.

**The Pines Guest House** A guest house on a large estate within walking distance to UNH, at 47 Dover Rd. About 3-4 rooms are available for \$69-\$99.

**Three Chimneys Inn** A newly restored 1649 Mansion and Carriage house, situated on a hill overlooking gardens, the Oyster River, and the Old Mill Falls; close to campus. The room rate is \$179/night. 17 Newmarket Road, Durham, NH 03824 Phone: 603.868.7800. 1.888.399.9777, Fax: 603.868.2964

### **Hotels in or near Portsmouth, NH:**

**Anchorage Inns** About 40 rooms are available for \$69.96 plus tax. About 10 miles from UNH. 417 Woodbury Avenue, Portsmouth, NH 03801 - 603-431-8111.

**Hampton Inn** About 60 rooms are available at \$89/night plus tax (use "MAA" to get the lower rate), including breakfast buffet and evening reception with complimentary snacks. About 10 miles from UNH. 99 Durgin Lane Portsmouth, New Hampshire 03801 (603) 431-6111, (800)-HAMPTON, Fax: (603) 431-6222.

**Courtyard by Marriott** About 40 rooms are available at \$109/night (use code "MAA"). About 12 miles from UNH. 1000 Market Street Portsmouth, New Hampshire 03801 1-603-436-2121 Fax: 1-603-430-7666.

**Best Western Wynwood Hotel and Suites** 40 rooms are available at \$79.95/night. Just off Interstate 95 at EXIT 5 in Portsmouth. (603) 436-7600

### **Meals**

There will be two meals that will be part of the regular meeting, a Dinner Banquet on Friday evening and a Lunch on Saturday. You must pre-register (see above) to be guaranteed reservations for these meals. Your pre-registration, including meal reservations, must be received by Thursday, November 10. Spouses and guests are welcome at meals but must be included in the pre-registration count. Both meals will be buffet-style with some vegetarian and

vegan options. However, we have asked for any special meal needs, e.g., vegetarian, vegan, just to be sure that we have adequate quantities.

The Banquet will be on Friday night, November 18th, 6:00-8:00pm, in Huddleston Hall. There will be three hot buffet entree choices, including a vegetarian dish. See the full [menu](#). The cost of the banquet is \$27.00 per person.

The cost for the buffet lunch on Saturday will be \$8.00 per person. The Lunch will be held in Holloway Commons.

The Section NExT Lunch on Friday is open only to Section NExT participants.

### **Parking**

The University of New Hampshire has strict parking regulations. Unless other arrangements are made, visitors should park in the Visitors Lot adjacent to the Visitor Information Center. Check the web site <http://www.southernct.edu/organizations/nasmaa/fall2005meetinglocalarrangements.html> closer to the meeting for more information on parking.

### **Directions**

#### **From Boston, Massachusetts**

Take I-95 North to Exit 4 (N.H. Lakes and Mountains, Spaulding Turnpike). Continue North to Exit 6W and follow Route 4 West. Exit at Route 155A and turn east toward Durham. Follow 155A through a short stretch of fields. Take a left onto Loop Road, bearing right and driving a short distance until you reach the UNH Visitor Center, a small white clapboard building on your left. Metered parking is available at the lot adjacent to the **Visitor Center**. You may purchase an all day parking pass in the Visitor Center. For more information about parking at UNH, visit **UNH Transportation Services** online.

#### **From Portland, Maine**

Follow I-95 South to Exit 5. Continue on Spaulding Turnpike North to Exit 6W and follow Route 4 West. Follow directions as listed from Boston. (Driving time, approx. 60 minutes)

#### **From Concord, New Hampshire**

Take Route 4 East to the 155A exit. Follow directions as listed from Boston. (Driving time, approx. 45 minutes)

### **From Manchester, New Hampshire**

Take Route 101 to Epping. Go north on Route 125 to the Lee Traffic Circle. Travel east on Route 4 to the Route 155A exit. Follow directions as listed from Boston. (Driving time, approx. 45 minutes)

#### **By Airplane**

Boston's Logan International Airport is approximately 60 miles from Durham. **C & J Trailways** offers bus service between Boston and Seacoast, N.H. The Manchester Airport is approximately 40 miles from Durham. (Bus service is not available from Manchester to Durham.)

#### **By Bus**

C&J Trailways has bus routes to the Seacoast area from Logan Airport and to Durham from South Station in Boston. For schedules and fares, call (603) 742-5111 from N.H., 1-800-258-7111 from outside N.H., or visit their Web site:

**[www.cjtrailways.com](http://www.cjtrailways.com).**

#### **By Train**

Amtrak Downeaster service provides four round-trips daily between Boston (North Station) and Portland, Maine. The Downeaster service stops directly at the UNH campus Friday through Sunday. Monday through Thursday, the train stops at the Dover, N.H. station, which is connected directly to UNH by Wildcat Transit Route 3. The Dover station is only five miles from the UNH campus — a short taxi ride away for immediate access. For more information on train schedules, please consult **[www.thedowneaster.com](http://www.thedowneaster.com)**. You may also call Amtrak at 1-800-USA-RAIL. Visit **UNH Transportation Services** for connecting Wildcat Transit service to the Dover station.

#### **By Shuttle**

Mermaid Transportation offers daily shuttle service between the Durham campus and Manchester and Logan airports. For schedules and fares, call 1-800-696-2463, or visit their Web site: **[www.gomermaid.com](http://www.gomermaid.com)**.

## **About University of New Hampshire**

Founded in 1866, the University of New Hampshire is a top-tier land-, sea-, and space-grant public university, serving more than 10,000 undergraduates and 2,000 graduate students. Recognized as a rising star among research universities, the University retains the atmosphere of a New England liberal arts college with a faculty dedicated to undergraduate teaching.

A spirit of discovery naturally informs the curricula, encouraging students to pursue their interests across disciplinary lines. Within its seven schools and colleges, the University offers 2,000 courses in more than 100 majors, a stimulating honors program, and a wide range of opportunities for internships, study abroad, and national exchange experiences. Participation in research is a keystone of the undergraduate experience.

## **Pre-Registration**

Please Pre-register! On-line registration is NOT available. Please send the registration form on the next page so that it arrives by Thursday, November 10, 2005. Checks should be made to: *NES/MAA*. If you have questions about registration, you can also contact Eric Grinberg at [grinberg@unh.edu](mailto:grinberg@unh.edu). You should mail this pre-registration form to :

MAA Registration c/o Jan Jankowski  
Department of Mathematics & Statistics  
G21 Nesmith Hall  
University of New Hampshire  
Durham, NH 03824

## **REGISTRATION FORM**

Last Name \_\_\_\_\_

First Name \_\_\_\_\_ MI \_\_\_\_\_

If you prefer another name on badge please indicate here: \_\_\_\_\_

Institutional Affiliation \_\_\_\_\_

Mailing Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

ZIP \_\_\_\_\_ Country \_\_\_\_\_ Daytime Phone Number \_\_\_\_\_

FAX Number \_\_\_\_\_

Email Address \_\_\_\_\_ Please check box that applies to you:

Four-year college faculty ☐ Two-year college faculty ☐

University faculty ☐ High School teacher ☐ Retired ☐

Business/industry/government ☐ Undergraduate ☐

Unemployed (but not retired) ☐ Graduate student ☐ Student ☐

Pre-registration fee:

MAA Member ☐ \$25.00 Non-Member ☐ \$30.00 **\$**

Student or unemployed ☐ \$10.00

Friday Banquet: \$27.00 per person (Be sure to include any guests.)

Number: \_\_\_\_\_ \$

Please indicate special meal needs/allergies: \_\_\_\_\_

Saturday Luncheon: \$8.00 per person (Be sure to include any guests.) Number: \_\_\_\_\_

Please indicate special meal needs/allergies: \_\_\_\_\_ \$

TOTAL PAYMENT (Checks should be made payable to:

NES/MAA.) \$

Section NExT:

There is no fee for Section NExT activities for Fall 2005.

Are you attending Section NeXT on Friday?

( ) Yes ( ) No

Are you attending the Section NeXT lunch on Friday?

( ) Yes ( ) No

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