



MATH IS POWER



Department of Mathematics
Dartmouth College - Hanover, NH
September 2009

Letter from the Chair, Dan Rockmore

Welcome to the second annual newsletter of the Department of Mathematics. The first newsletter last year was received extremely well from not only our alumni but from the college as a whole. We have received much praise and many comments on creating an electronic newsletter that is both informative and attractive. This newsletter is intended to reach out to all members of the Dartmouth College Mathematics Department including but not limited to: current department members, past faculty, graduate alumni and undergraduate math majors/minors alumni.

If you have visited the math department website in the last year you will notice some changes in our webpage. We invite you to explore and see what is happening in the department. Below are the posters from last years Reese T. Prosser Lecture Series that is scheduled every fall and the Kemeny Undergraduate Lecture that is scheduled every spring. To learn more about these lecture series go to: <http://www.math.dartmouth.edu/activities/> and click on the cooresponding links.

Ramanujan

Ken Ono

The Reese T. Prosser Mathematics Lecture Series Presents
**UNEARTHING THE VISIONS OF A MASTER:
The legacy of Ramanujan's last letter**
by
Ken Ono
Tuesday, November 18, 2008
008 Kemeny Hall, 7:00 pm

Abstract: The legend of Ramanujan is one of the most romantic stories in the modern history of mathematics. It is the story of an untrained mathematician, from south India, who brilliantly discovered tantalizing examples of phenomena well before their time. Indeed, the legacy of Ramanujan's work (as a whole) is well documented and includes direct connections to some of the deepest results in modern mathematics. However, one final problem remained, the enigma of the functions which Ramanujan discovered on his death bed. Here we tell the story of Ramanujan and this final mystery.

Free and open to the public.

The Reese T. Prosser Mathematics Lecture Series was organized in 2003 by the Department of Mathematics at Dartmouth College in honor of the late Professor Reese T. Prosser. The lecture series, established by the late Reese T. Prosser and his family, is intended to introduce the general public to mathematics of interest to the wide world.

Ken Ono is the Hildale Professor of Mathematics at the University of Wisconsin - Madison, and an avid surfer.

[2008 Reese T. Prosser Lecture Series]

Determinants in Wonderland

Abstract. Charles Dodgson, better known as Lewis Carroll, made noteworthy contributions to mathematics including methods for computing determinants. Even though Dodgson had a wonderful imagination, he never could have envisioned how many conjectures and how much mathematics his determinantal work would inspire. This talk will "begin at the beginning and go on" from there starting from Dodgson's view of determinants as condensed matter.

Wednesday, April 22, 2009
7:00 - 8:00 PM
008 Kemeny

Georgia Benkart
President - Association for Women in Mathematics
Professor Emerita - University of Wisconsin - Madison

Everybody Welcome!
2009 Kemeny Undergraduate Lecture

For more information:
<http://www.math.dartmouth.edu/>

[2009 Kemeny Undergraduate Lecture]

We hope you enjoy the newsletter. We would like to add an alumni section for next year, if you have any professional updates you would like to share with other alumni or know of others who might enjoy our newsletter please email **Tracy Moloney** (tfmoloney@dartmouth.edu). Please keep in touch and visit our webpage for more information. www.math.dartmouth.edu

Dan Rockmore
John G. Kemeny Parents Professor of Mathematics
Department Chair

Faculty Highlights

This year we welcome two new John Wesley Young postdoctoral instructors: **Johannes (Erik) van Erp** in operator algebras and noncommutative geometry (Ph.D., Pennsylvania State University) and **Andrew Yang** in number theory (Ph.D., Princeton University).

Johannes (Erik) van Erp comes to us from the The University of Pennsylvania, where he has held a lecturer position since receiving his Ph.D. in 2004 from Penn State. His thesis, written under the supervision of Prof. Nigel Higson, is entitled "The Atiyah-Singer Index Formula for Subelliptic Operators on Contact Manifolds." Most of Erik's research is on applications of noncommutative geometry to index theory, especially index theory of subelliptic operators on manifolds with extra structure. While at the University of Pennsylvania Erik received the Good Teaching Award four times in as many years.

Andrew Yang comes to us from Princeton University, where he received his Ph.D. in May 2009. His thesis, written under the supervision of Prof. Peter Sarnak, is entitled "Distribution problems associated to zeta functions and invariant theory." Most of Andrew's research is on analytic number theory and classical invariant theory.

Joe Mileti leaves his JWY position this summer to advance his career as an Assistant Professor (tenure-track) in Mathematics at Grinnell College. We wish him all the best in his new job!

Pete Winkler gave a plenary talk in March at the Festival della Matematica in Rome, on the topic "Mathematical Revelations in Bridge." Other speakers included eight Nobel prize winners and several winners of the Fields Medal. Among the former were Arno Penzias, former head of Bell Labs; John Nash, whose fame soared as a result of the movie "A Beautiful Mind", and Ronald Hoffman, who will be a Montgomery Fellow here at Dartmouth in the fall. Pete just completed his latest book, "CRYPTOBRIDGE", about mathematically-generated new ideas in the game of bridge. Pete was interviewed on NHPR about being a Mathematician in January.

Pete Winkler and Dorothy Wallace led Pete's Math 28 class to a special "Sol Lewitt" tour of the Hood Museum.

Alex Barnett was awarded the Class of 1962 Faculty Fellowship for 2009. <http://www.dartmouth.edu/~dof/facresearch/internal/class62.html> Alex also was awarded a \$310K single-PI NSF grant titled "Efficient spectrally accurate global basis methods for high frequency wave scattering, chaotic eigenmodes, and photonics." Alex gave a talk at WAVES2009 in Pau, France in June and has been invited to kick off the seminar series in September at the Computational Optical Sensing and Imaging program at UC Boulder. He was invited for a 3-week visiting fellowship to Australian National University in March 2009, including two research talks. Alex was invited to and attended the Laplace Eigenfunctions workshop in February 2009 at the Institute for Pure and Applied Mathematics, UCLA. In August Alex will attend the American Institute of Mathematics workshop on Random Sets in Palo Alto, CA.

Dan Rockmore was featured in "The Van Gogh Project: Art Meets Mathematics in Ongoing International Study," published in SIAM News, Volume 42, Number 4, May 2009. A link to the article posted on the department website: <http://www.math.dartmouth.edu/publicity/general/VanGoghProject.pdf>

Dorothy Wallace gave a half-day workshop in May on quantitative literacy at Emory and Henry, a private school in Virginia, for that school and others in the Appalachian College Association.

Carl Pomerance was the inaugural Lucas Lecturer at the Biennial Fibonacci Association conference in Patras, Greece and gave a plenary lecture at the Canadian Number Theory Association biennial meeting in Waterloo, Ontario. Carl also gave an invited lecture at the Counting Points on Varieties workshop held in Leiden, Netherlands in honor of Hendrik Lenstra's 60th birthday. Carl is currently the dissertation advisor of 4 graduate students and is working on research projects with 2 undergraduate students.

Chance News, a project of **Professor Emeritus J. Laurie Snell**, reviews current issues in

the news that use probability or statistical concepts. The Chance homepage contains teaching materials and other resources on probability and statistics. <http://www.dartmouth.edu/~chance/>

John Lamperti, Emeritus, continued his interest in El Salvador, traveling there in January to observe the first stage of the country's national elections and to continue research for a book on Salvadoran history.

Safari Books Online added "Masterminds of Programming" to their collection this spring. The book features exclusive interviews with the creators of several historic and highly influential programming languages including **Tom Kurtz** who, along with John Kemeny, developed the BASIC programming language at Dartmouth in the early 1960's.

Colloquia, Seminars, and Meetings

The 2008-2009 **Kemeny Lecture Series** in April featured **Georgia Benkart**, President of the Association for Women in Mathematics and Professor Emerita of University of Wisconsin, Madison. Professor Benkart presented 3 lectures: "Representations of Groups or Matrices," "Determinants in Wonderland," and "Travels to Hyperbolic Space Starting from an $sl(2)$ Base." To view past and future Kemeny Lectures go to: <http://www.math.dartmouth.edu/~colloq/kemeny-lectures/>

The 2008-2009 **Reese Prosser Memorial Lecture** in November featured **Ken Ono**, the Hilldale Professor of Mathematics at the University of Wisconsin - Madison. Ken lectured on: "Unearthing the Visions of a Master: The legacy of Ramanujan's last letter." To view past and future Prosser Lectures go to: <http://www.math.dartmouth.edu/~colloq/prosser-lectures/>

Colloquia are held on most Thursdays during the Fall, Winter and Spring Terms. Department Seminars are held weekly. Visit the Math webpage to view the calendar, for more specific information click on the left hand tab labeled *Colloquia, Seminars, and Meetings*.

Professor **Frank Morgan** of Williams College gave a talk at the Geometry and Topology Seminar titled: "Manifolds with Density, Poincare and Isoperimetric Programs on May 1, 2009.

The Fall 2008 Colloquia talks were:

- **Stefan Felsner**, Technische Universitaet Berlin (Germany) "Orientations of Planar Graphs"
- **Vincent Vatter**, Dartmouth "Growth rates of permutation classes"
- **Dae-Woong Lee**, Chonbuk National University, Korea and Dartmouth "On strong homology, phantom maps, and the same n-type problems"
- **Jeff Hirst**, Appalachian State University "Coloring problems and reverse mathematics"
- **Peter Woit**, Columbia University "BRST and Dirac Cohomology"
- **Sam Hsiao**, Bard College "Quasisymmetric functions and random walks on permutations"
- **Igor Wigman**, CRM, University of Montreal "Nodal lines of random eigenfunctions of the Laplacian"
- **Lizhen Ji**, University of Michigan "Mostow strong rigidity and stable Borel conjecture"
- **Ken Ono**, University of Wisconsin at Madison "Freeman Dyson's Challenge For The Future: The Mock Theta Functions"
- **Van Savage**, Harvard Medical School "Allometric Scaling and Physiological Networks"

The Winter 2009 Colloquia talks were:

- **Tom Goodwillie**, Brown University "Moduli spaces of graphs"
 - **Rustam Sadykov**, Dartmouth "Topological methods of solving differential equations"
 - **Joseph Milet**, Dartmouth "A Tale of Two Theorems: Calibrating Mathematical Complexity"
 - **Chris Danforth & Peter Dodds**, University of Vermont "The emotional content of large-scale texts: Measuring the happiness of bloggers, song lyrics, and presidents"
 - **Kiyoshi Igusa**, Brandeis University "What is higher Reidemeister torsion?"
 - **Christina Sormani**, Lehman College, CUNY "Distances between Riemannian Manifolds and Metric Spaces"
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- **Gregory Leibon**, Dartmouth “Can you hear the shape of the market?”
- **Meera Mainkar**, Dartmouth “Anosov automorphisms on nilmanifolds”

The Spring 2009 Colloquia talks were:

- **Ruth Gornet**, University of Texas at Arlington “The Covering Spectrum and Isospectrality”
- **Kevin Ford**, University of Illinois at Urbana-Champaign “Height of Pratt trees”
- **Shang-hua Teng**, Boston University “On the Complexity of Game, Market, and Network Equilibria”
- **Georgia Benkart**, University of Wisconsin at Madison “Representations of Groups of Matrices - Yeah Schur”
- **Georgia Benkart**, University of Wisconsin at Madison “Travels to Hyperbolic Space Starting from an $sl(2)$ Base”
- **G.V.Ravindra**, University of Missouri, St. Louis “Curves and threefolds: Towards a generalised Noether-Lefschetz theorem”
- **Emily Dryden**, Bucknell University “Eigenvalue (mis)behavior on manifolds”
- **Jean-Francois Lafon** “Introduction to simplicial volume”
- **Roland Roeder**, State University of New York at Stony Brook “2D rational dynamics for the Lee-Yang zeros---study of a model magnetic material”
- **Bjorn Poonen**, MIT “A sampler of undecidable problems”

During the week of February 22—28 Dartmouth hosted a small symposium on **non-commutative duality**. The idea of non-commutative duality is to extend the well known Pontryagin duality from abelian harmonic analysis to cover non-commutative groups, and more generally, to the crossed products of C^* -algebras by noncommutative groups. Recently, it has become apparent that certain of the standard questions can be phrased in terms of Fell bundles over groupoids. The purpose of this symposium was to bring together the expertise of experts on Fell bundles and groupoids – namely **Paul Muhly** from the University of Iowa and **Dana Williams** from here at Dartmouth – together with two of the world leaders in noncommutative duality – **Steve Kaliszewski** and **John Quigg** from Arizona

State University. The week was a very productive one and a joint research paper is expected to be produced.

The Math Dept was one of the sponsors in bringing **Randall Monroe** (Creator of xkcd) to Dartmouth for the 08 Fall Special Event – “xkcd Comes to Dartmouth” on November 7, 2008. <http://www.xkcd.com/>

Graduate Student Highlights

Congratulations to our 3 new Ph.D. graduates. **Jonathan Brown** (Dana Williams, advisor) has accepted a post-doc position at Ben-Gurion University in Israel. Jon’s thesis is titled: “Proper actions of Groupoids on C^* -algebras.” **Geoff Goehle** (Dana Williams, advisor) has accepted a tenure track position at Western Carolina University in Cullowhee, NC. Geoff’s thesis is titled: “Groupoid Crossed Products.” **John (Matt) Mahoney** (Jody Trout, advisor) is continuing his research at Dartmouth as a Visiting Scholar. John’s thesis is titled: “A Composition Formula for Asymptotic Morphisms.” To read abstracts go to: <http://www.math.dartmouth.edu/graduate-students/theses/>



Geoff Goehle won this year's Hannah Croasdale Award for academic excellence selected by the Dean of Graduate Studies.

Congratulations also to those graduate students who were invited to give research talks at conferences: **Jonathan Brown**, **Geoff Goehle** and **Enrique Trevino**. **Lola Thompson** gave a special lecture on Bertrand’s Postulate at The Ross Mathematics Program, an intensive summer number theory camp for high school students. She is an alumna of the program.

Enrique Trevino continued the department outreach with the Hartford High School where he gave a presentation on combinatorics to Warren Tucker's Calculus class.

In September we welcome 6 incoming students to our Ph.D. Program. **Kassie Archer** from the College of William & Mary, **Danny Crytser** from Whitman College, **Zebediah Engberg** from Hampshire College, **Zachary Hamaker** from California State University – Hayward, **Scott LaLonde** from Clarkson University and **Seth Harris** from Case Western Reserve University.

The Department has been awarded the **GRADUATE ASSISTANCE IN AREAS OF NATIONAL NEED (GAANN)** award from the Department of Education. This program provides fellowships, through academic departments and programs of IHEs, to assist graduate students with excellent records who demonstrate financial need and plan to pursue the highest degree available in their course study at the institution in a field designated as an area of national need.

Math Majors and Minors

In 2009, 45 Math Majors and 10 Minors graduated. In addition, the following students presented honors theses. To read abstracts go to: <http://www.math.dartmouth.edu/people/theses/>

- **Tom Kern** (Marcia Groszek, advisor) "Equivalents of Failures of the Axiom of Choice"
- **Yangyang Liu** (Sergi Elizalde, advisor) "Characterizations of the Forbidden Patterns of Functions"
- **Matthew Miller** (Dan Rockmore, advisor) "A Network Approach to Industrial Input-Output Analysis"
- **Yong Su** (Alex Barnett, advisor) "Tools for Computing the Capacitance of the Unit Cube and Laplace Eigenfunctions on the Sphere"
- **Qinggong Wu** (Dan Rockmore, advisor) "A Comparative Network Analysis of International Migration and Trade Networks"

Yong Su received a Neukom Scholarship (\$1000) to assist with senior thesis work on numerical

methods for PDEs. Yong Su is off to Stanford Statistics Graduate Program next year.

Ian Hayes '10 was named the winner of the 2008-2009 Francis L. Town Scientific Prize for Mathematics.

Jacob Baron won The James B. Reynolds Scholarships for Foreign Study and is going to the London School of Economics to study mathematics.

Emmanuel Mensah completed an independent study with Alex Barnett on inverse problems in medical imaging, which will appear in DUJS (Dartmouth Undergraduate Journal of Science) <http://dujs.dartmouth.edu/> Emmanuel is off to Harvard Medical School in the fall.

Evan Tice completed a senior thesis in the Computer Science Department, co-advised by Alex Barnett (Math) and Amy Gladfelter (Biological Sciences) on algorithms for automatic tracking from microscopy videos of cell nuclei undergoing mitosis.

Jimmy Ren (Howard Hughes Internship), **Ben Beir** (Presidential Scholar), **Cassi Pinion** (Wisp) and **Erin Causon** (NSF Grant) were all interns working with Dorothy Wallace this year.

Association for Women in Mathematics (AWM)

<http://www.awm-math.org/>

Our chapter of the **Association of Women in Mathematics (AWM)** at Dartmouth continued to thrive this year under the leadership of **Katherine Roddy** (president) and other officers **Jessica Wheeler**, **Cacey Tang**, **Erica Serpico** and **Olivia Liu**. We currently have over one hundred members in our mailing list. The website for our association is <http://math.dartmouth.edu/~awm>.

In April the AWM hosted Professor **Sarah Greenwald** from Appalachian State University who gave a talk titled: "Mathematical Morsels from THE SIMPSONS and FUTURAMA."

In January, **Paige Rinker** and **Lola Thompson** were invited to attend the annual Nebraska Conference for Undergraduate Women in mathematics. This conference was started in 1999 to

educate undergraduate women about graduate school and careers in mathematics as well as provide them with the opportunity to present their own work to peers and future colleagues. As invited graduate students, Paige and Lola served as panelists and discussion leaders during numerous sessions aimed at encouraging undergraduate women to continue in math.

Math Society

<http://www.math.dartmouth.edu/~mathteam/>

There is a thriving “mathematical community” on campus. **The Dartmouth Math Society** has regular meetings with activities that include lectures, movies, and pizza parties, as well as research lectures from its members.

Dartmouth sponsors a student chapter of the Association for Women in Mathematics. There are also various mathematical competitions: the department sponsors a Dartmouth team for the national Putnam Mathematical Competition which is held in early December. “Training sessions” are held all fall (you need not compete in order to train - and eat pizza!). The 2006 team placed 20th in the nation – Dartmouth’s best showing since 2001. In 2006 the Dartmouth team took first place at the Collegiate Mathematical Competition held by the Northeastern Section of the Mathematical Association of America. We are very happy to report that ten Dartmouth students took part in the Putnam Mathematical Competition this year. As usual, this competition takes place at an awkward time of year for the Dartmouth calendar, and this year was especially so, occurring during the Fall Term final examination period. So we are especially pleased that ten student took six hours out of their time to take part in the competition. All ten scored above the median of the over 3600 who participated. **Thomas Kern** placed among the top 100 contestants, and **Aria Anavi** and **Alan Faubert** ranked among the top 400. Despite these great individual performances, our choice of the three-member official Dartmouth team did not score very well.

In the 2008-09 academic year the president of the Math Society was **Jeremy Pham ‘11**, the vice president was **Jimmy Ren ‘11**, the treasurer was **Matthew Elkherj ‘11**, and **Henry Stewart ‘12** was the first year representative. In the coming 2009-10

academic year the president of the Math Society is **Hee-Sung Yang ‘12** and the vice president is **Aria Anavi ‘11**. Some statistics: there were 15 members of the Math Society in the class of ‘09. Currently on our web site we have 42 undergraduate students listed as members of the Math Society, 4 of them are sophomores (class of ‘12); 11 are juniors (class of ‘11) and 27 are seniors (class of ‘10). The faculty advisors for the DMS are Professors **Rosa Orellana** and **Vladimir Chernov**. Listed below are some of the activities of the DMS for the last academic year.

Talks by Mathematics Department regular and visiting faculty:

- Professor **Peter Winkler** “Circular Food Puzzles”, October 15, 2008
- Professor **Alexander Barnett**: “Singing in the Shower: New Ways to Compute Waves and Resonances”, November 12, 2008
- (Research Associate) **Dan Graham** “Vision and Mathematics”, February 25, 2009
- Professor **Vladimir Chernov** “Causality and linking”, April 8, 2009
- Professor **Carl Pomerance** “Sociable Numbers”, April 29, 2009
- Professor **Florian Luca** (Instituto de Matematicas UNAM Unidad Morelia) “On Sums of Powers of Primes”, May 6, 2009

Talks by Dartmouth Faculty from other departments:

- Professor **Hany Farid** (The Neukom Institute, Dartmouth) “Digital Forensics”, October 1, 2008
- Professor **Richard Granger** (The Neukom Institute, Dartmouth) “Brain Circuit Algorithms”, October 22, 2008
- Professor **Thomas H. Cormen** (Computer Science Department) “Stupid Columnsort Tricks”, October 29, 2008
- Professor **Miles Blencowe** (Physics Department) “Macroscopic Mechanical Systems Approaching the Quantum Regime”, November 5, 2008
- Professor **Lisa Fleischer** (Computer Science Department) “Routing Games” November 19, 2008

Talks by our graduate students:

- **Mitsuo Kobayashi** “Perfect Numbers, Amicable Numbers, and Beyond ...” October 8, 2008
- **Annalies Vuong** “A Special Topic on Graph Theory”, February 11, 2009

Talks by our undergraduate students:

- **Thomas Kern '09** “Spheres, Gnomes, and Rubber Bands: Some Really Big Hammers from BSM”, January 19 2009
- **Thomas Kern '09** “The Axiom of Choice?”, April 1, 2009
- **Yangyang Liu '09** “Pattern-Avoiding Functions”, April 15, 2009
- **Thomas Kern '09** the presentation of his senior thesis, May 14, 2009

Talks by Dartmouth alumni:

- **Varun Jain** “A DC Energy Presentation” September 30, 2008

Trips of our undergraduates to the conferences organized by the Math Society:

- Trip to the NES MAA Meeting at Bentley University. Presentation by **Matthew D. Guay '11** at the student papers session on November 21, 2009.
- Trip to the XVI Hudson River Undergraduate Mathematics Conference HRUMC Presentations by **Emily Marshall '09** “Gerrymandering, Convexity, and Shape Compactness”; **Thomas Kern '09** “Equivalent Failures of the Axiom of Choice” and Prof **Vladimir Chernov** “Causality and linking”

For over a hundred years the Department has conducted the Thayer Prize Mathematical Exam for first-year students. The names of the winners are put on a plaque in the undergraduate lounge in Kemeny Hall.

2009 Winners:

Brian Nachbar 1st place

Xu Huang 2nd place

Gregory Troderman 2nd place

Thomas Bao 2nd place

Edward Talmage, Honorable Mention

Curriculum News

Current listing of courses offered by the Math Dept can be reviewed in the ORC online at:

<http://www.dartmouth.edu/~reg/courses/desc/>

We now have 7 math minors with the addition of minors in: **Mathematical Biology**, **Mathematical Logic**, **Mathematical Physics** and **Mathematical Finance**. In addition, we have added a new **Modified Major in Mathematics and Philosophy**.

Four graduate students, who recently received their Master of Arts in Mathematics from Dartmouth, completed the "**Teaching Seminar**", a seven week two credit intensive course in the teaching and learning of mathematics that includes two weeks of practice teaching. This years class of **Patricia Cahn**, **Avram Gottschlich**, **Benjamin Linowitz** and **Lauren Thompson** choose subjects in Group Theory and Enumerative Combinatorics for the two weeks of practice teaching.

The goal of the seminar is to prepare students to teach their first Dartmouth class and to give them tools for ongoing professional development as teachers. In addition to Mathematics Department faculty members and guests from the Dartmouth Center for the Advancement of Learning, the First Year Dean's Office, the Academic Skills Center and Student Accessibility Services, the graduate students also benefited from a session with presentation coach Eliza Bergeson.

As part of their preparation the students in the seminar organized and ran two week-long "Exploring Math" camps for local middle and high school students arranged in advance through the Center for Mathematics and Quantitative Education (<http://math.dartmouth.edu/~mqed/>). Over 20 local participants attended each of the two sessions, coming from Hanover, Lebanon, Enfield, and Plainfield, New Hampshire as well as Thetford, Norwich, Sharon, Post Mills, Wilder and Weathersfield, Vermont.

In addition to benefiting Dartmouth graduate students and the undergraduates they teach, this summer experience provides a valuable link between our department and the communities in which we live and work.

Dartmouth has announced a new program agreement between **Dartmouth Graduate Studies** and **The Tuck School of Business**, paving the way for a Dartmouth PhD to obtain an accelerated MBA

degree. For more information on this program go to:
<http://www.dartmouth.edu/~gradstdy/programs/dartmouthphdmba.html>

Digital Library for Alumni

The Alumni Digital Library continues to be a sought after resource, just for you, Dartmouth College alumnus/alumna. The recently redesigned alumni webpage includes a single search box to find articles in all of the databases your status allows you to search remotely. Through special arrangements and funding, alumni have remote access to a selection of full-text articles in hundreds of newspapers and magazines. Mathematics titles accessed recently from this collection include International Journal Of Mathematics, Inventiones Mathematicae, and Journal Of Mathematical Sciences.

Don't forget that you have lifetime access to all of our library resources onsite including access to our thousands of licensed digital resources from any of the libraries, either at computers provided or by connecting to the Dartmouth Library Public wireless network. <http://www.dartmouth.edu/~library/alumni/>.
