
Department of Mathematics
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Updated: 11/15/06

Employment

Ithaca College	Associate Professor	2007 - present
Ithaca College	Assistant Professor	2001 - 2006

Education

Ph.D. in Mathematics, Cornell University, August 2001 Advisor: John H. Hubbard.
M.S. in Mathematics, Cornell University, August 1998.
B.A. in Mathematics, Ithaca College, May 1995, *Summa Cum Laude*.

Scholarly Interests

Holomorphic Dynamical Systems, Fractal Geometry, Undergraduate Research

Publications (peer reviewed)

1. Identities and Parseval type relations for the L_2 -transform, with J. Maceli and O. Yürekli, *Applied Mathematics and Computation*, in press.
2. Identities for the $\mathcal{E}_{2,1}$ -transform and their applications, with N. Dernek and O. Yürekli, *Applied Mathematics and Computation*, 187 (2007), number 2, 1557-1566.
3. Undergraduate research in mathematics as a curricular option, with O. Yürekli, *International Journal of Mathematics Education in Science and Technology*, 38 (2007), number 5, 571-580.
4. Symmetric fractal trees in three dimensions, with R. Frongillo and E. Lock, *Chaos, Solitons, & Fractals*, 32 (2007), number 2, 284-295.
5. Super-attracting cycles for the cosine-root family, with M. Halstead*, *Chaos, Solitons, & Fractals*, 31 (2007), number 5, 1191-1202.
6. Identities for the exponential integral and the complementary error transforms, with N. Dernek and O. Yürekli, *Applied Mathematics and Computation*, 182 (2006) number 2, 1377-1384.
7. Integrating inquiry/discovery based activities into the mathematics curriculum, with O. Yürekli, *Mathematicians and Education Reform Forum Newsletter*, 19 (2006) number 1, 4-10.
8. Structure of the pathlength set of asymmetric trees, with C. Epstein* and W. Sendewicz*, *Fractals*, 13 (2005), number 4, 293-297.
9. Necessary conditions for cyclic elements on elliptic curves, with E. Heinzman*, *Pi Mu Epsilon Journal*, 12 (2004), number 1, 1-8.
10. Identities for generalized Fibonacci numbers, with D. Tang* and L. Monk*, *Intl. Journal of Math Education in Science and Technology*, 35 (2004), number 3, 436-439.
11. Pathlength and tree height in asymmetric binary branching fractal trees, with A. O'Hanlon* and P. Howard*, *Missouri Journal of Mathematical Sciences*, 16 (2004), number 2, 88-103.

(* indicates Ithaca College student)

Publications (peer reviewed) - continued

12. Teichmüller Theory and Applications to Geometry, Topology, and Dynamics, by John H. Hubbard, with contributions by A. Douady, W. Dunbar, R. Roeder, S. Bonnett, **D. Brown**, A. Hatcher, C. Hruska, S. Mitra. Textbook published by Matrix Editions, 2006.
13. Undergraduate research experience at Ithaca College, with O. Yürekli, Proceedings of the Third International Conference on the Teaching of Mathematics, Istanbul, Turkey, June/July 2006.

Invited and Contributed Presentations

1. *New Directions in Undergraduate Mathematics*, COMPASS POINTS workshop, Golden, CO, October 2006.
2. *Undergraduate Research Experience in Mathematics at Ithaca College*, Third International Conference on the Teaching of Mathematics, Istanbul, Turkey, June/July 2006.
3. *Integrating Discovery/Research into the Mathematics Curriculum*, MAA Seaway Section Meeting, NExT Workshop, Ithaca College, April 2006.
4. *Experimental Mathematics and Writing: Motivating First Year Students*, AMS/MAA Joint Mathematics Meeting, San Antonio, TX, January 2006.
5. *Transforming Student Learning through an Exploration/Research Curricular Approach*, with O. Yürekli, invited session leaders, Mathematicians and Education Reform (MER) Forum Workshop on Excellence in Undergraduate Mathematics, Arizona State University, December 2005.
6. *Experimental Mathematics and Writing for First Year Math Students*, Math. Assoc. of America Seaway Section meeting, SUNY Geneseo, October 2005.
7. *The Senior Seminar or "Capstone" Experience for Undergraduate Mathematics Majors*, MAA Panel Discussion (invited panelist), AMS/MAA Joint Mathematics Meeting, Atlanta, GA, January 2005.
8. *Undergraduate Research Course Sequence at Ithaca College*, AMS/MAA Joint Mathematics Meeting, Atlanta, GA, January 2005.
9. *Dynamics of Entire Transcendental Functions*, MAA Seaway Sectional Meeting, SUNY Cortland, April 2004.
10. *Engaging in Research with Undergraduates*, Graduate Student Seminar, Cornell University, February 2004.
11. *Undergraduate Research Courses at Ithaca College*, AMS/MAA Joint Mathematics Meeting, Phoenix, AZ, January 2004.
12. *Involving Teacher Education Students in Undergraduate Research*, AMS-MER Excellence in Undergraduate Mathematics Conference, Ithaca, NY, March 2003.

Invited and Contributed Presentations (continued)

13. *Addressing the Needs of Secondary Education Students in Undergraduate Research*, AMS/MAA Joint Mathematics Meeting, Baltimore MD, January 2003.
14. *Generating undergraduate research projects via metric geometry*, MAA Seaway Section meeting, SUNY Potsdam, November 2002.
15. *Universality of the Mandelbrot Set*, Ithaca College Colloquium Series, Ithaca College, October 2002.
16. *A Distant Cousin of the Mandelbrot Set*, MAA Seaway Section meeting, SUNY Brockport, April 2002.
17. *An Undergraduate Research Experience with Technology*, with O. Yürekli, International Conference on Technology in Collegiate Mathematics, Baltimore, MD, November 2001.
18. *Thurston Algorithm for non-postsingularly finite polynomials and exponentials*, AMS Special Session on Number Theory, Holomorphic Dynamics and Algebraic Dynamics, AMS Sectional Meeting, Williams College, October 2001.
19. *Spider Algorithms: Combinatorics and Teichmüller Theory*, The Dynamical Odyssey, CIRM, Marseille France, February 2001.
20. *Fractal Geometry as Curriculum Enhancement*, AMS/MAA Joint Meeting, New Orleans LA, January 2001.
21. *Graduate Outreach - Exploring Mathematics in Elementary and High School*, with K. Nyman, MAA Seaway Sectional Meeting, SUNY Oswego, April 2000.
22. *Follow the Orbits - An Introduction to Dynamical Systems*, Sophomore Seminar, Ithaca College, February 2000.
23. *Univalent Mappings and the Schwarzian Derivative*, MAA Seaway Sectional Meeting, Adirondack Community College, November 1999.
24. *Mapmaking and the Geometry of Surfaces*, Math/CS Seminar, William Smith and Hobart Colleges, May 1999.
25. *Modified Spider Algorithm*, Special Conference on Complex Dynamics, University of Arkansas, Fayetteville, April 1999.

Grants

- Research Experience for Undergraduates in Computer Visualization, NSF-REU grant 0353687, Faculty Mentor, Summers 2004-2009.
- Dana Research Intern, *Targeting via Newton's Method*, with William Sendewicz (mathematics student), AY 2004-2005.
- Dana Research Intern, *Asset Valuation with Incomplete Markets*, with Veselin Vulckov (Accounting student), Summer 2004.
- Ithaca Fund Travel Grant, funds to support student travel to research conference, Spring 2004, Spring 2005, Spring 2006.
- Dana Research Intern, *Geometric Approach to Torsion on Elliptic Curves*, with Eric Heinzman (mathematics student), Summer 2002.
- Dana Research Intern, *A Secondary School Curriculum Supplement in Cryptology*, with Jesse Moran (mathematics-teaching student), Summer 2002.

Awards and Distinctions

Faculty/Staff Mentor Award, Office of Multicultural Affairs, April 2005
Ithaca College Mathematics Department Merit Award, AY 2004-2005
Ithaca College Mathematics Department Merit Award, AY 2002-2003
Faculty Development Award: 3 credit course release AY 2006-2007
Faculty Development Award: 3 credit course release AY 2004-2005
Faculty Development Award: 3 credit course release AY 2003-2004
John and Emily Clark Distinguished Teaching Award, Outstanding teaching in the Cornell University College of Arts and Sciences, May 2000.
Cornell University Summer Research grants, 1996-2000.
Ford Foundation Doctoral Graduate Fellowship, National Research Council 1995-1998.
Honorable Mention, National Science Foundation Fellowship Competition, 1995.

Undergraduate Research Supervision (representative selection)

Internal Rays for the Mandelbrot Set, Walter Hannah **Honors Thesis**, Ithaca College, 2005-2006.

Dynamics of the Cosine-root Family, Matt Halstead, **Honors Thesis**, Ithaca College, 2003-2004. Presented at Hudson River Undergraduate Mathematics Conference, Mt. Holyoke College, April 2004.

Minimization of Walking Distance via Subway Metric, Carly O'Brien, **Honors Thesis**, Ithaca College, 2002-2003. Presented at Hudson River Undergraduate Mathematics Conference, Union College, April 2003.

Analysis of 3-dimensional Fractal Tree Canopies, Peter Maceli (Cornell University), REU Grant 0353687, Ithaca College, Summer 2004. Prize winning poster at AMS/MAA Joint Mathematics Meeting, Atlanta, GA, January 2005.

Structure of Pathlengths in Asymmetric Fractal Trees, Chloe Epstein, Ithaca College, 2004-2005. Presented at Nebraska Conference for Undergraduate Women in Mathematics, Lincoln, NE, February 2005.

Configuration of Two Subway Lines to Minimize Walking Distance, Donny Tang, Ithaca College, 2002-2003. Presented at Hudson River Undergraduate Mathematics Conference, Mt. Holyoke College, April 2004.

Generalized Fibonacci Identities, Lindsay Monk and Donny Tang, Ithaca College, 2002-2003. Presented at Hudson River Undergraduate Mathematics Conference, Union College, April 2003.

Intersection of Parametrized Fibonacci Sequences, Matt Halstead and Joe Goodenbery, Ithaca College, 2002-2003. Presented at Hudson River Undergraduate Mathematics Conference, Union College, April 2003.

A Secondary School Curriculum Supplement in Cryptology, Jesse Moran, Ithaca College, 2002.

Geometric Approach to Torsion on Elliptic Curves, Eric Heinzman, Ithaca College, 2002. Presented at Hudson River Undergraduate Mathematics Conference, Hamilton College, April 2002.

Asymmetric Binary Branching Fractal Trees, A. O'Hanlon and P. Howard, Ithaca College, 2000-2001. Presented at Nebraska Conference for Undergraduate Women in Mathematics, Lincoln, NE, February 2001.

Courses Taught

Ithaca College

Math 108 - Applied Calculus	Math 111 - Calculus I
Math 112 - Calculus II	Math 176 - Problem Solving with Technology
Math 211 - Calculus III	Math 212 - Calculus IV
Math 250 - Problem-solving Seminar	Math 261 - Linear Algebra II
Math 291 - Sophomore Seminar	Math 397 - Junior Seminar
Math 303 - Abstract Algebra	Math 398 - Mathematical Explorations
Math 39810 - Research in Mathematics	Math 401 - Complex Analysis
ICSM 13420 - History of Secrets	

Service to College

Humanities & Sciences Curriculum Committee, 2006-2008
HEOP Hiring Committee, Summer 2007
Summer Orientation Advisor, 2005, 2006, 2007
Faculty Council, Ithaca College, AY 2002-2006, 2007-2009
Faculty Council, Executive Committee, Ithaca College, AY 2005-2006
HOMER Steering Committee, new student information system, Ithaca College, AY 2005-2006
Academic Achievement and Advising Committee, Ithaca College, AY 2002-2005
Leadership Scholarship Committee, Ithaca College, AY 2001-2006
Admissions Faculty Speaker, Open House, October 2002, November 2003, October 2005
Recruitment Committee, Mathematics Dept, AY 2004-2005
MAT (math) Committee, Mathematics Dept, AY 2004-2005
Webmaster, Mathematics, AY 2004-2008
Committee on the Major, chair, Mathematics, AY 2002-2003
Curriculum Committee, Mathematics, AY 2002-2003, 2005-2006
Faculty advisor, Math Club/Pi Mu Epsilon, AY 2001-2006
Library Liaison, Mathematics, AY 2001-2007

Service to Mathematics

Referee

Missouri Journal of Mathematical Sciences
International Journal of Mathematics Education in Science & Technology

Co-organizer

MAA Session on *Integration of Undergraduate Research within the Mathematics Curriculum*, AMS/MAA Joint Meetings, Baltimore MD, January 2003.

Local Organizer

Hudson River Undergraduate Mathematics Conference, 2001-2007.

External Program Reviewer

Houghton College Mathematics Department, November 2006.

Service to Community

Ithaca College Math Camp, organized events with education students on cryptology and pursuit curves, August 2007.

Ithaca College Math Exploration Day, a day of mathematics for area high school students, Ithaca College, April 2005, March 2006, March 2007. Wrote competition exam and gave cryptology presentation.

Who Wants to Be a Mathematician?, game show centered on mathematics, created and host (with Dani Novak) in campus center, Ithaca College, October 2005.

Ithaca High School Career Day, invited guest speaker on job opportunities related to mathematics, April 2004.

History of Secrets: Introduction to Cryptology, introductory cryptology interactive presentation, through the Ithaca College Partnership in Teaching program.

- Alternative Community School sixth grade math class, Teaching Partnership, December 2005.
- FOCUS program, full day of presentations in enrichment program through TST BOCES, DeWitt Middle School, May 2004 & May 2005.
- Candor High School Math Students (12th grade), December 2004.
- DeWitt Middle School Students (6th grade), December 2004.

Professional Memberships

American Mathematical Society
Mathematical Association of America
Mathematicians and Education Reform Forum
Pi Mu Epsilon
Sigma Xi

Computational Proficiency

Mathematica
Matlab
C++
L^AT_EX

References

Available upon request.