Amy T. DeCelles
Curriculum Vitae

Contact Information

Goshen College
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Education

2009-2011   University of Minnesota, Mathematics PhD, May 2011
Thesis advisor: Paul Garrett
Dissertation title: *Automorphic Partial Differential Equations and Spectral Theory with Applications to Number Theory*

2005-2009   University of Minnesota, Mathematics, MS, April 2009

2001-2005   University of Chicago, Mathematics, BS, June 2005

Awards and Distinctions

- Doctoral Dissertation Fellowship, 2010-2011

- NSF-funded summer research assistantships, 2008-2010

- Evelyn R. Garbe Scholarship for Women in Mathematics, 2003-2005

- (University of Chicago) *cum laude*, Phi Beta Kappa

Research Interests

Automorphic forms, number theory, representation theory. I am particularly interested in number theoretic applications of the automorphic spectral theory of higher rank groups, the long term goal being to extract asymptotics with error terms, hoping to obtain subconvex bounds, for automorphic L-functions from spectral identities involving integral moments of L-functions.

Research Experience

Summers 2008-2010   Research assistant for Professor Paul Garrett, University of Minnesota

Summer 2005   REU SUNY-Potsdam, with Professor Joel Foisy, graph theory and knot theory

Summers 2001-2004   Research assistant for Professor Craig Lent, University of Notre Dame: developed a tool for simulating the behavior of quantum cellular automata (QCA) arrays of molecules as an electric field varies with time and wrote Flash code to generate movies from the output data

Summer 2000   Research assistant, QuarkNet project, University of Notre Dame: assembled fiber waveguides for use in the DZero detector at Fermilab

Publications and Preprints

- "An exact formula relating lattice points in symmetric spaces to the automorphic spectrum," Amy DeCelles, to appear, *Illinois J. Math.*

- "Fundamental solution for $(\Delta - \lambda_z)^\nu$ on a symmetric space G/K," Amy DeCelles. *Submitted.*

- "On graphs for which every planar immersion lifts to a knotted spatial embedding," Amy DeCelles, Joel Foisy, Chad Versace, Alice Wilson. Involve 1 (2008), no. 2, 145–158.

Talks and Presentations

- "Explicit fundamental solution for $(\Delta - \lambda)^\nu$ on G/K." University of Notre Dame Lie Theory Seminar, Notre Dame, IN, December 2011.

- "Geometry, Arithmetic, and Questions about Numbers." Purdue University Calumet Mathematics Colloquium, Calumet, IN, November 2011.

- "Number theoretic applications of the automorphic spectral theory of higher rank groups." Ohio State Number Theory Seminar, Columbus, OH, October 2011.

- "What is a number?" Wabash College Mathematics Colloquium, Crawfordsville, IN, October 2011.

- "Pythagorean Triples and Fermat's Last Theorem." Goshen College Science Speakers Series, Goshen, IN, May 2011.

- "Automorphic Spectral Theory and Number Theoretic Applications." Reed College Mathematics Colloquium, Portland, OR, October 2010.

- "Spectral identities and exact formulas for counting lattice points in symmetric spaces." Midwest Number Theory Conference for Graduate Students, University of Wisconsin–Madison, November 2009.

- "Relative trace formulas for GL(3), an alternate prescription for spectral identities." Report from AIM Workshop on GL(3), University of Minnesota, November 2008.

- "Instrinsically linkable graphs," with Alice Wilson. MathFest, the summer meeting of the Mathematical Association of America, Providence, RI, August 2004.

Teaching Experience

2011-present	Assistant Professor of Mathematics, Goshen College
August 2010	Facilitator: practice teaching sessions for new teaching assistants, University of Minnesota
2009-2010	Lecturer for College Algebra (Fall) and Precalculus II (Spring), University of Minnesota
2007-2009	Development of course materials: generated supplementary course materials for introductory calculus, University of Minnesota
Summer 2006	Advising: evaluated and advised incoming students regarding math placement, University of Minnesota
2005-2009	Discussion section leader for various classes including Calculus I-II, University of Minnesota

2001-2005	Assistant teacher: instructed elementary school reading, writing, and math groups in Chicago and South Bend public schools

Conferences Attended

Jan 6-7, 2012	Joint Mathematics Meetings, Boston, Massachusetts
Nov 18, 2011	Midwest Number Theory Day, University of Wisconsin-Madison, Madison, Wisconsin
Apr 15-16, 2011	MAA North Central Section Spring Meeting, Carleton College, Carleton, Minnesota
Nov 7-8, 2009	Midwest Number Theory Conference for Graduate Students, University of Wisconsin-Madison, Madison, Wisconsin
Nov 6, 2009	Midwest Number Theory Day, University of Wisconsin-Madison, Madison, Wisconsin
Nov 17-21, 2008	Analytic Theory of GL(3) Automorphic Forms and Applications Meeting, American Institute of Mathematics, Palo Alto, California
Jul 28-27, 2007	Conference in Honor of Freydoon Shahidi: On Certain L-functions, Purdue University, West Lafayette, Indiana
Aug 12-14, 2004	MathFest, the summer meeting of the MAA, Providence, Rhode Island
Aug 7-9, 2003	International Workshop on Quantum-Dots for Quantum Computing and Classical Size Effect Circuits, University of Notre Dame, Notre Dame, Indiana