

Amy T. DeCelles

Curriculum Vitae

Contact Information

Bethel University
Math, Engineering, and Computer Science Department
1001 Bethel Circle
Mishawaka, IN 46545
amy.decelles@betheluniversity.edu
amydecellesmath.org

Employment

2021-present Associate Professor of Mathematics, Bethel University, Indiana
2018-2021 Associate Professor of Mathematics, University of St. Thomas, Minnesota
2012-2018 Assistant Professor of Mathematics, University of St. Thomas, Minnesota
2011-2012 Assistant Professor of Mathematics, Goshen College

Education

2009-2011 University of Minnesota, Mathematics PhD, May 2011
Thesis advisor: Paul Garrett
2005-2009 University of Minnesota, Mathematics, MS, April 2009
2001-2005 University of Chicago, Mathematics, BS, June 2005

Awards and Distinctions

- Faculty Research Grant, University of St. Thomas, 2021
- Sabbatical Assistance Grant, University of St. Thomas, 2019-2020
- Faculty Research Grant, University of St. Thomas, 2017-2018
- Faculty Research Grant, University of St. Thomas, 2013-2014
- Project NExT Fellowship, 2012-2013
- 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

Publications

- “Global automorphic Sobolev theory and the automorphic heat kernel,” Amy DeCelles. *Illinois J. Math.* **65** (2021), no. 2, 261–286
- “Constructing Poincaré series for number theoretic applications,” Amy DeCelles. *New York J. Math.* **22** (2016), 1221–1247.

- “Branching of automorphic fundamental solutions,” Amy DeCelles. *Michigan Math. J.* **64** (2015), no. 2, 263–277.
- “An exact formula relating lattice points in symmetric spaces to the automorphic spectrum,” Amy DeCelles. *Illinois J. Math.* **56** (2012), no. 3, 805–823.
- “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.

Invited Research Talks

- “The automorphic heat kernel from a geometric perspective.” University of Minnesota Automorphic Forms Seminar, Minneapolis, Minnesota, November 6, 2019.
- “Semigroups and uniqueness of solutions of differential equations in automorphic forms, IV.” University of Minnesota Automorphic Forms Seminar, Minneapolis, Minnesota, November 19, 2018.
- “Semigroups and uniqueness of solutions of differential equations in automorphic forms, III.” University of Minnesota Automorphic Forms Seminar, Minneapolis, Minnesota, November 12, 2018.
- “Semigroups and uniqueness of solutions of differential equations in automorphic forms, II.” University of Minnesota Automorphic Forms Seminar, Minneapolis, Minnesota, November 5, 2018.
- “Semigroups and uniqueness of solutions of differential equations in automorphic forms, I.” University of Minnesota Automorphic Forms Seminar, Minneapolis, Minnesota, October 29, 2018.
- “Automorphic Spectral Decomposition for $GL(3, \mathbb{Z})$.” University of Minnesota Automorphic Forms Seminar, Minneapolis, Minnesota, November 13, 2017.
- “Automorphic Heat Kernels.” University of Minnesota Automorphic Forms Seminar, Minneapolis, Minnesota, September 25, 2017.
- “Global Automorphic Sobolev Theory and Automorphic Heat Kernels.” AMS Special Session on Automorphic Forms and L-functions, Fall Eastern Sectional Meeting, State University of New York at Buffalo, Buffalo, New York, September 16, 2017.
- “Applications of Modern Analysis to Automorphic Forms and Analytic Number Theory.” AMS Special Session on Representation Theory, Automorphic Forms, and Related Topics, Fall Central Sectional Meeting, University of St. Thomas, Minneapolis, Minnesota, October 28, 2016.
- “Zeros of Zeta Functions and Eigenvalues of Pseudo-Laplacians.” AMS Special Session on Number Theory, Fall Central Sectional Meeting, University of Wisconsin-Eau-Claire, September 20, 2014.
- “Designing Poincaré series for number theoretic applications.” University of Minnesota Lie Theory Seminar, Minneapolis, Minnesota, March 7, 2014.
- “Automorphic Spectral Identities from Differential Equations.” City University of New York Joint Seminar: Number Theory and Representation Theory, New York, NY, April 26, 2013.
- “Automorphic Spectral Identities from Differential Equations.” University of Minnesota Automorphic Forms Seminar, Minneapolis, MN, April 22, 2013.

- “Automorphic spectral identities, integral moments of L-functions, and lattice points in a symmetric space.” University of Michigan GLNT (Group, Lie, and Number Theory) Seminar, Ann Arbor, MI, February 2, 2012.
- “Integral moments for Rankin-Selberg convolutions for $GL(n) \times GL(n)$ over a totally complex number field.” Purdue University Automorphic Forms Seminar, West Lafayette, IN, January 2012.
- “Explicit fundamental solution for $(\Delta - \lambda)^\nu$ on G/K .” University of Notre Dame Lie Theory Seminar, Notre Dame, IN, December 2011.
- “Number theoretic applications of the automorphic spectral theory of higher rank groups.” Ohio State Number Theory Seminar, Columbus, OH, October 2011.
- “Relative trace formulas for $GL(3)$, an alternate prescription for spectral identities.” Report from AIM Workshop on $GL(3)$, University of Minnesota, November 2008.

Contributed Research Talks

- “The automorphic heat kernel: spectral and geometric points of view.” Maine-Quebec Number Theory Conference, University of Maine, October 5, 2019.
- “Eigenvalues of pseudo-Laplacians and Compact Periods of Eisenstein Series.” Illinois Number Theory Conference, University of Illinois at Urbana-Champaign, August 14, 2015.
- “Branching of Automorphic Fundamental Solutions.” Building Bridges: 2nd EU/US Workshop on Automorphic Forms and Related Topics, University of Bristol, July 7, 2014.
- “Branching of Automorphic Fundamental Solutions.” 2014 Midwest Number Theory Conference for Graduate Students and Recent PhDs, University of Illinois at Urbana-Champaign, June 4, 2014.
- “Designing Poincare series for number theoretic applications.” Joint Mathematics Meetings, Baltimore, Maryland, January 15, 2014.
- “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.

Colloquium Talks and Other Presentations

- “Large Primes: Diamonds, Keys, and a One Million Dollar Question.” SUNY Potsdam REU, Virtual, July 22, 2021.
- “Large Primes: Diamonds, Keys, and a One Million Dollar Question.” Hamline University Mathematics Colloquium, St. Paul, Minnesota, February 26, 2019.
- “Number Theory and Mathematical Physics: Applying ‘applied math’ to the ‘purest’ of ‘pure math’.” Gustavus Adolphus College MCS (Mathematics, Computer Science, and Statistics) Seminar, St. Peter, Minnesota, March 13, 2017.
- “Prime Numbers, Quantum Chaos, and Pseudo-Laplacians.” University of St. Thomas Center for Applied Mathematics Colloquium, St. Paul, Minnesota, September 29, 2015.

- “Prime Numbers, Quantum Chaos, and Pseudo-Laplacians.” St. Cloud State University Mathematics & Statistics Colloquium, St. Cloud, Minnesota, November 6, 2014.
- “Open Conjectures in Number Theory.” University of St. Thomas Math and Actuarial Science Club, St. Paul, Minnesota, May 1, 2014.
- “Blending Evaluative and Formative Assessment.” Joint Mathematics Meetings, Baltimore, Maryland, January 15, 2014.
- “What is a Number?” University of Minnesota Talented Youth Mathematics Program Seminar, Minneapolis, Minnesota, September 23, 2013.
- “Why do Mathematics?” Math and Science Camp for Girls, Trinity School at Greenlawn, South Bend, Indiana, March 31, 2012.
- “Geometry, Arithmetic, and Questions about Numbers.” Purdue University Calumet Mathematics Colloquium, Calumet, Indiana, November 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, Indiana, May 2011.
- “Automorphic Spectral Theory and Number Theoretic Applications.” Reed College Mathematics Colloquium, Portland, OR, October 2010.
- “Intrinsically linkable graphs,” with Alice Wilson. MathFest, the summer meeting of the Mathematical Association of America, Providence, RI, August 2004.

Conferences Attended

July 13-14, 2020	REMOTE: The Connected Faculty Summit, hosted by Arizona State University
May 29-31, 2020	Cross-Atlantic Representation Theory and Other Topics Online Conference
Jan 15-18, 2020	Joint Mathematics Meetings, Denver, Colorado
Oct 5-6, 2019	Maine-Quebec Number Theory Conference, University of Maine, Orono, Maine
Nov 14-16, 2018	Sixth Abel Conference: A Mathematical Celebration of Robert P. Langlands, Institute for Mathematics and its Applications, Minneapolis, Minnesota
Sep 16-17, 2017	AMS Fall Eastern Sectional Meeting, State University of New York at Buffalo, Buffalo, New York
Oct 28-30, 2016	AMS Fall Central Sectional Meeting, University of St. Thomas, Minneapolis, Minnesota
Mar 17-20, 2016	re:boot Number Theory 2016, Intensive Research Retreat for Women in Number Theory, Duke University, Durham, North Carolina
Aug 13-14, 2015	Illinois Number Theory Conference, Urbana-Champaign, Illinois

Sep 20-21, 2014	AMS Central Fall Sectional Meeting, University of Wisconsin-Eau Claire, Eau Claire, Wisconsin
Jul 7-11, 2014	Building Bridges: 2nd EU/US Workshop on Automorphic Forms and Related Topics, University of Bristol, Bristol, UK
Jun 5-7, 2014	Number Theory at Illinois: A conference in memory of the Batemans and Heini Halberstam, Urbana-Champaign, Illinois
Jun 3-4, 2014	Midwest Number Theory Conference for Graduate Students and Recent PhDs, Urbana-Champaign, Illinois
Jan 15-16, 2014	Joint Mathematics Meetings, Baltimore, Maryland
Oct 14-18, 2013	Women in Numbers - Europe, CIRM, Luminy, France
Jul 31-Aug 3, 2013	MathFest, the summer meeting of the MAA, Hartford, Connecticut
Jul 30-Aug 3, 2013	Project NExT Workshop, Hartford, Connecticut
Apr 15-19, 2013	Combinatorics, Multiple Dirichlet Series and Analytic Number Theory, ICERM, Providence, RI
Jan 8-12, 2013	Joint Mathematics Meetings, San Diego, California
Aug 2-4, 2012	MathFest, the summer meeting of the MAA, Madison, Wisconsin
Jul 30-Aug 1, 2012	Project NExT Workshop, Madison, Wisconsin
Apr 23-27, 2012	Automorphic Forms and Related Geometry, Yale University, New Haven, Connecticut
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

Teaching Experience

- 2021-present Associate Professor of Mathematics, Bethel University:
Abstract Algebra, Mathematical Theory and Proof, Calculus III,
Introductory Seminar in Math
- 2018-2021 Associate Professor of Mathematics, University of St. Thomas
Writing Across the Curriculum (WAC) Certification (2020)
- 2012-2018 Assistant Professor of Mathematics, University of St. Thomas:
Abstract Algebra I-II, Topics in Applied Math and Modeling II (Cryptography),
Complex Variables, Linear Algebra, Calculus I-III, Calculus with Review II
- 2011-2012 Assistant Professor of Mathematics, Goshen College:
Modern Geometry, Linear Algebra, Calculus I-II, Precalculus
- 2009-2010 Lecturer for College Algebra (Fall) and Precalculus II (Spring), 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

Service Activities

- 2013-present Referee for The College Mathematics Journal
- 2021 Faculty Mentor for Pre-Tenure Faculty
- 2020-2021 Co-coordinator (with Junsen Tang) for Calculus II-III
- 2020 Math outreach to high school girls at Thomas MacLaren School, Colorado Springs, Colorado
- 2019 Panelist for “Applying to Jobs in Number Theory,” panel discussion for graduate students
at the University of Minnesota
- 2018-19 Co-coordinator (with Brenda Kroschel) for Calculus II-III
- 2018-19 Developed proposed “bridge course” curriculum
- 2018-19 Member of three-person Peer Teaching Panel, observing and evaluating teaching of tenure
candidate in another department
- 2018-19 Co-coordinator (with Mike Axtell) for Peer Teaching Teams for first- and second-year tenure-
track faculty members in the math department; co-lead (with Rebecca Glover) for one such
teaching team
- 2014-19 Departmental contact for prospective students: meet with prospective students who are
interested in mathematics when they visit the university
- 2018 Committee to explore possible “bridge course” in a revised mathematics major
- 2018 Committee for Mathematics Program Review, Part IV

2017-18	Co-lead (with Mike Axtell) for Peer Teaching Team for new tenure-track faculty members in the math department
2017	Faculty senator, representing Division of Math and Science, College of Arts and Sciences
2017	Department self-study: committee on student outcomes and student satisfaction
2016	Chair of departmental committee tasked with surveying undergraduates about the math major program
2015	Faculty focus group for College of Arts and Sciences branding and vision
2015	Steering committee for departmental review of mathematics major program
2014-15	Math outreach in middle and high school girls' classrooms at Trinity School at Greenlawn
2014-15	Hiring committee for tenure-track position in mathematics department
2014-15	Committee to draft statement defining "substantive research" for mathematics department
2013-14	Calculus program committee: identify goals for calculus program based on results from several committees' work, redesign calculus program according to goals
2012-13	Calculus review committee: conduct review of calculus curriculum by interviewing members of the mathematics department and investigating innovative calculus programs throughout the country
2012-13	Conducted math subject GRE preparation sessions for students applying to graduate school

Professional Memberships

- American Mathematical Society
- Mathematical Association of America
- Women in Numbers
- Project NExT