Amy T. DeCelles
Curriculum Vitae

Contact Information

Bethel University
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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

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.

Grants, Awards, and Distinctions

○ PUI Faculty Travel Grant to support participation in the Joint Mathematics Meetings, January 2023, covering travel expenses up to $2100.

- Faculty Research Grant, University of St. Thomas, "The heat kernel and a 'ladder' of zeta functions," 2021, $5800. *Grant awarded but not used due to change in institutions.*

- Sabbatical Assistance Grant, University of St. Thomas, "Applying heat diffusion to number theory," 2019-2020, $1875.

- Faculty Research Grant, University of St. Thomas, "Pseudo-Laplacians and zeta functions: a spectral approach to fundamental questions in number theory," 2017-2018, $4800.

- Faculty Research Grant, University of St. Thomas, "Designing Poincaré series for Number Theoretic Applications," 2013-2014, $4300.

- 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

Invited Research Talks

- "The automorphic heat kernel and ladders of zeta functions." AMS Special Session on Number Theory at Non-PhD-Granting Institutions, Joint Mathematics Meetings, Boston, Massachusetts, January 5, 2023.

- "The automorphic heat kernel and the Jorgenson-Lang ladder of zeta functions." University of Minnesota Automorphic Forms Seminar, Minneapolis, Minnesota, March 18, 2020. *Cancelled.*

- "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

- "Cultivating an Investigative Mindset in Mathematics for Liberal Arts." Inquiry-Based Learning Session, MAA MathFest, Indianapolis, Indiana, August 9, 2024.

- "Heat Kernels, Spectral Theory, and Zeta Functions." Bethel University STEM Seminar, September 9, 2022.

- "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

Aug 7-10, 2024   MAA MathFest, Indianapolis, Indiana.

Oct 7, 2023	Fall 2023 Meeting of the Indiana Section of the MAA, University of Notre Dame, South Bend, Indiana.
May 23, 2023	ChatGPT, Moving from Perils to Potentials, MAA Webinar.
Jan 5-6, 2023	AMS Special Session on Number Theory at Non-PhD-Granting Institutions, Joint Mathematics Meetings, Boston, Massachusetts.
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.
May 11-15, 2020	34th Annual Automorphic Forms Workshop, Moab, Utah. *Cancelled.*
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, Real Analysis, Theory of Computation, Modern Geometry, Mathematical Theory and Proof, Number Theory and History of Mathematics, Probability and Statistics, Calculus I-III, Introductory Seminar in Mathematics, Excursions in Mathematics, Math Lab
2018-2021	Associate Professor of Mathematics, University of St. Thomas
2012-2018	Assistant Professor of Mathematics, University of St. Thomas
	Abstract Algebra I-II, Topics in Applied Math and Modeling II (Cryptology), 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

2024-present	Teaching Award Committee, Indiana Section of the MAA
2023-present	Faculty Development Committee, Secretary (Bethel University)
2022-present	Student Development Committee (Bethel University)
2022-present	Faculty Nomination Committee (Bethel University)
2013-present	Referee for *The College Mathematics Journal*
2022-2023	Co-leader for weekly campus bible study for undergraduates (Bethel University)
2022-2023	Faculty mentor for new faculty member (Bethel University)
2022	BAUGO Promise (Bethel University). Co-taught (with Sheri Campeau) elementary school students about financial planning for college.
2021	Faculty mentor for pre-tenure mathematics faculty (University of St. Thomas)
2020-2021	Co-coordinator (with Junsen Tang) for Calculus II-III (University of St. Thomas)
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 (University of St. Thomas)
2018-19	Developed proposed "bridge course" curriculum (University of St. Thomas)
2018-19	Member of three-person Peer Teaching Panel, observing and evaluating teaching of tenure candidate in another department (University of St. Thomas)
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 (University of St. Thomas)
2014-19	Departmental contact for prospective students: meet with prospective students who are interested in mathematics when they visit the university (University of St. Thomas)
2018	Committee to explore possible "bridge course" in a revised mathematics major (University of St. Thomas)
2018	Committee for Mathematics Program Review, Part IV (University of St. Thomas)
2017-18	Co-lead (with Mike Axtell) for Peer Teaching Team for new tenure-track faculty members in the math department (University of St. Thomas)

2017	Faculty senator, representing Division of Math and Science, College of Arts and Sciences (University of St. Thomas)
2017	Department self-study: committee on student outcomes and student satisfaction (University of St. Thomas)
2016	Chair of departmental committee tasked with surveying undergraduates about the math major program (University of St. Thomas)
2015	Faculty focus group for College of Arts and Sciences branding and vision (University of St. Thomas)
2015	Steering committee for departmental review of mathematics major program (University of St. Thomas)
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 (University of St. Thomas)
2014-15	Committee to draft statement defining "substantive research" for mathematics department (University of St. Thomas)
2013-14	Calculus program committee: identify goals for calculus program based on results from several committees' work, redesign calculus program according to goals (University of St. Thomas)
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 (University of St. Thomas)
2012-13	Conducted math subject GRE preparation sessions for students applying to graduate school (University of St. Thomas)

Other Training and Certification

2022   Choice Theory/Reality Therapy Basic Intensive Training (William Glasser Institute)

2020   Writing Across the Curriculum (WAC) Certification (University of St. Thomas)

Professional Memberships

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