CONTACT INFORMATION

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U.S. citizen

RESEARCH INTERESTS

Broad: Number Theory, Arithmetic Geometry, Diophantine Geometry, Algebraic Geometry,.
Specific: Arithmetic of Varieties, Galois Representations, Modular Curves, p-adic and Tropical geometry (especially applications to geometry and number theory), Stacks, Moduli, non-abelian techniques in arithmetic, p-adic Cohomology, "number theory informed by computation".

APPOINTMENTS

Amherst College
Professor (2023 - present)

Emory University
Associate Professor (2017 - 2023)
Assistant Professor (2011 - 2017; tenure track)

University of Wisconsin-Madison
Van Vleck Assistant Professor (2010 - 2011, RTG postdoctoral fellow)

VISITING POSITIONS

University of Padua, Italy
Visiting Bruno Chiarellotto, May 2012

EDUCATION

University of California, Berkeley, California USA
Ph.D., Mathematics, August 2010
Dissertation Topic: "Rigid Cohomology for Algebraic Stacks"
Adviser: Bjorn Poonen (MIT); co-advised by Brian Conrad (Stanford)

Technical University of Budapest, Budapest, Hungary
Budapest Semesters in Mathematics
Two semesters of study (Spring 2002, Spring 2004).

The University of Arizona, Tucson, Arizona USA
B.S., Mathematics with Honors, December, 2003

GRANTS (PERSONAL)

(2024-26) **NSF Standard Grant** (DMS-2430098, Amherst College, $140,000.00)
(2023-24) **NSF Standard Grant** (DMS-2302356, Emory University, $70,000.00)
(2023-28) **Simons Foundation: Travel Support for Mathematicians** (Declined)
(2016-22) **NSF Career** (DMS-1555048 Emory University, $416,997.00)
(2011-13) **NSA Young Investigator Grant** (Emory University, $40,000)

GRANTS (CONFERENCE)

(2025) **ICERM: Algebraic points on curves**

(2023) **AMS Mathematical Research Communities: Explicit Computations with Stacks**

(2022) **Simons Symposium: Geometry of Arithmetic Statistics**

(2020-2023) **NSF Award for the Georgia Algebraic Geometry Symposium**
(Co-PI, with UGA and Georgia Tech)

NSF Award for the Arizona Winter School in Arithmetic Geometry
(The University of Arizona, Co-PI)
(2023-2025 $448,399), (2020-2023, $550,000), (2015-2019, $550,000)

(2016-21/23) **CMI: Enhancement and Partnership Program Proposal; Arizona Winter School Southwest Center for Arithmetic Geometry**
(The University of Arizona, Co-PI, yearly application, $25,000-$30,000/yr)

(2020-2021) **NSA Award for the Arizona Winter School in Arithmetic Geometry**
(The University of Arizona, Co-PI, $25,000)

Honors and Awards

(Fall 2010)	Residence Halls Honored instructor (UW-Madison)
(Spring 2006)	NDSEG (National Defense Science and Engineering Graduate) Fellowship (UC-Berkeley)
(Spring 2005)	National Science Foundation Graduate Research Fellowship (UC-Berkeley)
(Spring 2003)	Goldwater Scholarship (The University of Arizona)
(Spring 2003)	CATTS (Collaboration to Advance Teaching, Technology and Science) Fellowship (The University of Arizona, funded by NSF DGE-9979670)

Publications (Peer reviewed journal articles)

1. **Primitive Integral Solutions to $x^2 + y^3 = z^{10}$**;
International Mathematics Research Notices IMRN 2012, no. 2, 423-436.

2. **The Chabauty-Coleman bound at a prime of bad reduction and Clifford bounds for Geometric Rank Functions**; with Eric Katz;
Compositio Mathematica 149 (2013), no. 11, 1818-1838.

3. **Random Dieudonné modules, random p-divisible groups, and random curves over finite fields**;
with Bryden Cais and Jordan Ellenberg;
J. Math. Inst. Jussieu 12 (2013), no. 3, 651-676.

4. **Integral Monsky-Washnitzer cohomology and the overconvergent de Rham-Witt complex**;
with Christopher Davis;
Mathematical Research Letters 21 (2014), No 2; 281-288.

5. **Cohomological Descent on the Overconvergent Site**; *Research in the Mathematical Sciences*, 2014, 1:8; 20 pages.

6. **Formal GAGA for Good Moduli Spaces**;
with Anton Geraschenko; *Algebraic Geometry*, 2 (2015), no. 2, 214-230.

7. **A heuristic for the distribution of point counts for random curves over a finite field**;
with Jeffrey D. Achter, Daniel Erman, Kiran S. Kedlaya, Melanie Matchett Wood; *Philosophical Transactions of the Royal Society*, 2015, no. 373 2040310; 12 pages.

8. **Elliptic curves over $\mathbb{Q}$ and 2-adic images of Galois**;
with Jeremy Rouse; *Research in Number Theory*, Volume 1, Issue 1, 2015; 34 pages.

9. **Uniform bounds for the number of rational points on curves of small Mordell–Weil rank**;
with Eric Katz and Joe Rabinoff, *Duke Mathematical Journal*, Volume 165, Number 16 (2016), 3189-3240.

10. **Chip-firing groups of iterated cones**;
with Morgan Brown and Jackson S. Morrow; *Linear Algebra and its Applications*, 556 (2018), 46–54.

11. **Total p-differentials on schemes over $\mathbb{Z}/p^2$**;
with Taylor Dupuy, Eric Katz, Joseph Rabinoff; *Journal of Algebra* Volume 524 (2019)

12. **The canonical ring of a stacky curve**;

with John Voight; *Mem. Amer. Math. Soc.* 277 (2022), no. 1362, 137 pages.

13. **Deligne–Illusie Classes as Arithmetic Kodaira–Spencer Classes**;
with Taylor Dupuy; *Journal de Théorie des Nombres de Bordeaux* 31 (2019), no. 2, 371–383.

14. **Sporadic Cubic Torsion**,
with Maarten Derickx, Anastassia Etropolski, Mark van Hoeij, and Jackson S. Morrow, *Algebra & Number Theory* 15-7 (2021), 1837–1864. DOI https://doi.org/10.2140/ant.2021.15.1837

15. **ℓ-adic images of Galois for elliptic curves over $\mathbb{Q}$**,
with Jeremy Rouse and Andrew Sutherland and an appendix with John Voight;
Forum of Mathematics, Sigma, Volume 10, 2022. DOI https://www.doi.org/10.1017/fms.2022.38

16. **Heights on stacks and a generalized Batyrev–Manin–Malle conjecture**,
with Jordan S. Ellenberg and Matthew Satriano;
Forum of Mathematics, Sigma, Volume 11, 2023

17. **Angle Ranks of Abelian Varieties**,
with Taylor Dupuy and Kiran S. Kedlaya; Mathematische Annalen (2023): 1-17.

18. **A predicted distribution for Galois groups of maximal unramified extensions**, with Yuan Liu and Melanie Matchett Wood; accepted for publication in Inventiones mathematicae

PUBLICATIONS (SUBMITTED)

19. **Arithmetic irrationality of del Pezzo surfaces**, with Adam Logan, Anthony Várilly-Alvarado; submitted, and will appear on arxiv soon

PREPRINTS

20. **Wild Stacky Curves and Rings of Mod p Modular Forms**
with Andrew Kobin, arxiv 2510.08821

21. **Cohomology with closed support on the overconvergent site**; 36 pages.

PROCEEDINGS

22. **Diophantine and tropical geometry, and uniformity of rational points on curves**; with Eric Katz and Joe Rabinoff, Survey article for the 2015 Summer Research Institute on Algebraic Geometry Proceedings, *Proceedings of Symposia in Pure Mathematics*, Volume 97.2, 2018.

PUBLICATIONS (THESIS)

23. **Rigid Cohomology for Algebraic Stacks**; David Brown; UC Berkeley thesis; 76 pages.

PUBLICATIONS (NON-RESEARCH)

24. **Early Career: How to balance research with everything else we have to do**, Notices of the American Mathematical Society, May 2020

PUBLICATIONS (NON-MATH)

25. **Crack azimuths on Europa: The G1 lineament sequence revisited**; Alyssa R. Sarid, Richard Greenberg, Gregory V. Hoppa, David M. Brown Jr., and Paul Geissler; Icarus, 2005; 173 (2).

EDITORIAL

26. **Analytic Methods in Arithmetic Geometry**; Contemporary Mathematics, 740. Centre de Recherches Mathématiques Proceedings. *American Mathematical Society, [Providence], RI*, 2019. vii+248 pp. ISBN: 978-1-4704-3784-8. Co-edited with Alina Bucur.

Teaching (Amherst College)

Amherst College, Amherst, MA
Professor.

Undergraduate[1]

Spring 2025	Real Analysis	Math 355	
Spring 2025	Representation Theory	Math 375	
Fall 2024	Graph Theory	Math 280	(2 lectures)
Spring 2024	Mathematical Reasoning and Proof	Math 220	
Spring 2024	Number Theory	Math 250	
Fall 2023	Linear algebra	Math 271	
Fall 2023	Mathematical Reasoning and Proof	Math 220	

Reading courses

Spring 2024	Additive Combinatorics	1 undergraduate
Spring 2024	Topology	1 undergraduate

Teaching (Emory)

Emory University, Atlanta, GA
Assistant/Associate Professor.

Average teaching evaluation score: **8.51/9**; 377 undergraduate students over 11 years.[2]

Undergraduate (21 courses)

Fall 2022	Foundations of Mathematics	Math 250
Spring 2022	Foundations of Mathematics	Math 250
Fall 2021	Foundations of Mathematics	Math 250
Fall 2021	Number Theory	Math 328
Fall 2020	Foundations of Mathematics	Math 250 (2 lectures, online)
Fall 2020	Number Theory	Math 328 (online)
Spring 2020	Honors Multivariable Calculus	Math 276
Fall 2019	Foundations of Mathematics	Math 250
Spring 2018	Foundations of Mathematics	Math 250
Spring 2017	Honors Multivariable Calculus	Math 276 (co-developed the course)
Fall 2016	Honors Linear Algebra	Math 275 (co-developed the course)
Fall 2016	Abstract Algebra I	Math 421
Spring 2016	Foundations of Mathematics	Math 250
Spring 2015	Abstract Algebra II	Math 422
Fall 2014	Abstract Algebra I	Math 421
Fall 2013	Foundations of Mathematics	Math 250 (2 lectures)
Fall 2012	Foundations of Mathematics	Math 250 (2 lectures)
Spring 2012	Linear Algebra	Math 221
Fall 2011	Foundations of Mathematics	Math 250

[1] See https://dmzb.github.io/teaching/oldCourses.html for course webpages
[2] My new institution (Amherst College) does not have numerical teaching evaluations.

Graduate (9 courses)

Fall 2022	Stacks	Math 788 (Online, 100 registered participants)
Fall 2019	Local Class Field Theory	Math 528
Spring 2019	Algebraic Topology II	Math 544
Spring 2019	Algebra II	Math 522
Fall 2018	Algebra I	Math 521
Spring 2018	Scheme Theory	Math 788
Spring 2016	Algebraic Topology II	Math 544
Fall 2014	Local Class Field Theory	Math 528
Spring 2014	Algebraic Topology II	Math 544
Fall 2012	Stacks	Math 788

Reading courses Math 497R[3]

Fall 2020	The Arithmetic of Elliptic Curves	4 Ph.D. students
Fall 2019	The Arithmetic of Elliptic Curves	2 Ph.D. students
Fall 2018	Topology	5 undergraduates
Spring 2018	Rational Points on Elliptic Curves	4 undergraduates
Spring 2017	Mathematical Cryptography	7 undergraduates
Spring 2015	Rational Points on Elliptic Curves	3 undergraduates
Spring 2015	Foundations of Algebraic Geometry	2 undergraduates, 6 Ph.D. students
Spring 2014	Rational Points on Elliptic Curves	8 undergraduates
Spring 2014	The Arithmetic of Elliptic Curves	3 Ph.D. students
Spring 2013	Number theory and quadratic forms	3 undergraduates
Spring 2013	The Arithmetic of Elliptic Curves	3 Ph.D. students

Student Seminars[4]

Fall 2022	JUICE	Just an Unlikely Intersections Colloquium at Emory
Spring 2022		Automorphic forms Seminar
Fall 2021		Modular forms and modular curves Seminar
Spring 2021	GASES	Geometric Arithmetic Statistics Emory Seminar
Fall 2020	EARSSS	Emory ARithmetic Statistics Student Seminar
Spring 2020	QUICHE	QUadratIc CHabauty at Emory
Fall 2019	NACHOS	Non-Abelian CHabauty and Other Stuff
Spring 2018	SITAR	Seminar on Iwasawa Theory And Ramification
Summer 2017	NACHOS	Non-Abelian CHabauty and Other Stuff
Spring 2017	PASTA	Perfectoid & Adic Spaces: Trending Applications
Fall 2016	NAPS	Non-Archimedean and Perfectoid Spaces seminar
Spring 2016	NAGS	Non-Archimedean Geometry student Seminar
Spring 2015	RAPS	Rational Points on higher dimensional varieties

Teaching (Other)

University of Wisconsin, Madison, Madison, Wisconsin USA
Van Vleck Assistant Professor.

(Spring 2011)	CURL (Collaborative Undergraduate Research Lab) http://www.math.emory.edu/~dzb/teaching/490Spring2011/	(Math 490)
(Fall 2010)	Calculus I (209 students)	(Math 221)

University of California, Berkeley, Berkeley, California USA
Graduate Student Instructor. Led discussion sections (3 hours per week per section). Wrote weekly

[3] See http://www.math.emory.edu/~dzb/teaching/Emory-Elliptic-Reading-Undergrad-Spring2014/ for an example

[4] See https://sites.google.com/site/quadraticchabautyatemory/ for a sample

quizzes, graded quizzes and exams, and held office hours.

(Fall 2006)	Multivariable Calculus I	(Math 53)
(Spring 2005)	Calculus II	(Math 1B)
(Fall 2004)	Calculus I	(Math 1A)

Ha:San High School, Tucson, AZ Fall 2002 - Spring 2003
CATTS (Collaboration to Advance Teaching, Technology and Science) Fellowship. Used fellowship to spend 15 hours a week in a local Native American high school as a teaching assistant for two classes (one Algebra 1 and one Geometry) and helped to develop science curriculum and projects geared toward students with weak math and science backgrounds.

REU (Summer Research Experiences for Undergraduates)

Emory University NSF REU in Number Theory, Atlanta, GA
(2011-2017) Advised 22 students (see below for a list)

UW-Madison NSF REU in Number Theory, Madison, Wisconsin USA
(2010) Advised 2 students

Mentoring and advising

Tenure Track Faculty

(2020-2023) Brooke Ullery

Postdocs and visiting faculty

(2021-24)	Andrew Kobin	(Postdoctoral fellow)
(2021-23)	Kaelin Cook-Powell	(Visiting assistant Professor)
(2021-22)	Matthew Just	(Visiting assistant Professor)
(2019-22)	Jeffrey Yelton	(Visiting assistant Professor)

Ph.D. Students

(2025)	Santiago Arango-Piñeros	"*Generalized Fermat equations, stacks, and arithmetic statistics*" 1st job: Postdoc at UMass Amherst.
(2025)	Roberto Hernandez	"*Rational Points on a Family of Genus 3 Hyperelliptic Curves*" 1st job: Presidential Postdoctoral Fellow at the University of California, Irvine
(2025)	Alexis Newton	"*Low-degree points on some rank 0 modular curves*" 1st job: Faculty at Augusta University
(2024)	Michael Cerchia	"*Topics in Abelian Varieties*" 1st job: Postdoc at University of Maine
(2023)	Chris Keyes	"*Topics in Arithmetic Statisticcs*" 1st job: Heilbronn Institute for Mathematical Research
(2021)	Tomer Reiter	"*Isogenies of Elliptic Curves and Arithmetical Structures on Graphs*" 1st job: Duolingo 2nd job: Senior Full Stack Software Engineer at Climate Central
(2020)	Jackson Morrow	"*Non-Archimedean and Tropical Techniques in Arithmetic Geometry*" 1st job: Centre de Recherches Mathematiques (2020) 2nd job: RTG postdoc at Berkeley (2021-2023) Currently: Tenure Track at University of North Texas
(2018)	Charles Morrissey	"*Topics in Tropical and Analytic Geometry*" Currently: working in industry
(2016)	Anastassia Etropolski	"*Rational Points on Curves*" 1st job: RTG Postdoctoral fellow at Rice Currently: Engineer at Foursquare
(2016)	Mckenzie West	"*Brauer-Manin Computations for Surfaces*" 1st job: Postdoc at Reed College 2nd job: Postdoc at Kalamazoo College Currently: Tenure Track at University of Wisconsin–Eau Claire

Masters students

(2016)	Jackson Morrow	"*Topics in Elliptic curves*" Currently: Ph.D. candidate at Emory

Joint MS/BS students

(2017)	Noam Kantor	"*Rank-Favorable Bounds for Rational Points on Superelliptic Curves*" Goldwater fellow and Marshall Scholarship winner DPhil in Mathematics, 2019, Oxford Professional Staff Member U.S. Senate Committee on Commerce, Science, and Transportation, 2021 Sr. Public Policy and Government Relations Analyst, Mozilla, 2023
(2016)	William Baker	"*The Log canonical ring of a graph curve*" Ph.D. at UCLA (2021) Post phd: Senior Associate at MSCI Inc.
(2014)	Dalton Bidleman	"*Toric rank functions on graphs*" Ph.D. candidate at Auburn (2024)

Undergraduates (Honors, Amherst College)

(2025)	Osha Jones	"*Local to global problems about elliptic curves*" (in progress)
(2024)	Alan Li	"*Greatest hits in Ramsey Theory*"

Undergraduates (Honors, Emory)

(2019/20/21)	Lingxin Cheng	"*Local-To-Global Property of Transitive Subgroups of* S_p"
(2018/19/20)	David Luo	"*Nonuniqueness Properties of Zeckendorf Related Partitions*"
(2018)	Yitong Lu	"*Local-to-Global Principle in Symmetric Groups*"
(2018)	Amy Miller	"*On Direct-Sum Decompositions of the Picard Group of a Graph*"

Undergraduates (Non REU/Honors research)

(2021)	Zhenke Liu
(2016)	Jon King
(2012 - 2014)	Henry Yelin
(2012 - 2014)	Jackson Morrow
(2010)	Larry Rolen (UW Madison); co-advised a research project;

Undergraduates (Emory REU)[5]

(2017)	Sanath Devalapurkar	(**Soros** Fellowship)
(2017)	John Halliday	
(2017)	Sameera Vemulapalli	(**Schafer Prize** honorable mention)
(2017)	Danielle Wang	(**Schafer Prize** honorable mention)
(2016)	Ashvin Swaminathan	(**Morgan Prize** winner)
(2016)	James Tao	
(2016)	Yujie Xu	
(2015/16)	Aaron Landesman	(**Morgan Prize** honorable mention)
(2015)	Peter Ruhm	
(2015)	Robin Zhang	
(2014)	Evan O'Dorney	(**Morgan Prize** honorable mention)
(2014)	Benjamin Gunby	
(2014)	Alexander Smith	
(2014)	David Yang	(**Morgan Prize** Winner)
(2014)	Allen Yuan	
(2013)	Akhil Mathew	(**Morgan Prize** honorable mention)
(2013)	Jesse Silliman	
(2013)	Isabel Vogt	
(2012)	David Corwin	
(2012)	Tony Feng	
(2012)	Zane Li	
(2012)	Sarah Trebat-Leder	
(2010/13)	Eric Larson	(**Morgan Prize** Winner)
(2010)	Dmitry Vaintrob	

[5]The Morgan and Schafer prizes are the yearly national prizes for best undergraduate research in mathematics; see https://en.wikipedia.org/wiki/Morgan_Prize and https://en.wikipedia.org/wiki/Alice_T._Schafer_Prize for more info.

Ph.D. Thesis Committees (Emory, mathematics)

(2022)	Jayanth Guhan	Advisor: Suresh Venapally
(2021)	Maryam Khaqan	Advisor: John Duncan
(2020)	Sumit Chandra Mishra	Advisor: Suresh Venapally
(2020)	Lea Beneish	Advisor: John Duncan
(2019)	Victor Aricheta	Advisor: John Duncan
(2018)	Olivia Beckwith	Advisor: Ken Ono
(2018)	Bastian Haase	Advisor: Parimala
(2018)	Sarah Trebet-Leder	Advisor: Ken Ono
(2017)	Reed Gordon-Sarney	Advisor: Parimala
(2016)	Amanda Clemm	Advisor: Ken Ono
(2016)	Zhengyao Wu	Advisor: Suresh Venapally
(2016)	Nivedita Bhaskhar	Advisor: Parimala
(2015)	Michael Griffin	Advisor: Ken Ono
(2013)	Larry Rolen	Advisor: Ken Ono
(2013)	Robert Lemke Oliver	Advisor: Ken Ono

Masters Thesis Committees (Emory, mathematics)

(2022)	Adheep Joseph	Advisor: Parimala
(2021)	Yazan Alamoudi	Advisor: Parimala

Ph.D. Thesis Committees (mathematics; external)

(2022)	Jacob Mayle	Advisor: Nathan Jones	(University of Illinois, Chicago)
(2021)	Sergio Zapata Ceballos	Advisor: Chris Hall	(Western Ontario, Canada)
(2020)	Sudarshan Shinde	Advisor: Razvan Barbaud	(Jussieu, Paris)
(2014)	Spencer Backman	Advisor: Matt Baker	(Georgia Tech)
(2014)	Ye Luo	Adivsor: Matt Baker	(Georgia Tech)
(2013)	Farbod Shokreih	Advisor: Matt Baker	(Georgia Tech)

Honors and MS/BS Committees (Emory)

(2022)	Angela Cao	Honors, Linguistics	Advisor: Jinho Choi
(2022)	Leisheng Yu	Honors, Math	Advisor: Carl Yang
(2022)	Siwei Xu	Honors, Math	Advisor: Parimala
(2021)	John Cox	Honors, QTM	Advisor: Jeremy Jacobson
(2020)	Kimberly Sharp	Honors, Chemistry	Advisor: Simon Blakely
(2019)	Alan Rohrbach	Honors, Physics	Advisor: Connie Roth
(2019)	Varoon Pazhyanur	Honors, Math BS	Advisor: David Borthwick
(2018)	Morad Hassan	MS/BS, Math BS	Advisor: John Duncan
(2018)	Robert Dicks	MS/BS, Math BS	Advisor: John Duncan
(2018)	Paul Vienhage	MS/BS, Math BS	Advisor: John Duncan
(2017)	Ethan Alwaise	MS/BS, Math BS	Advisor: Ken Ono
(2016)	Kevin Sheng	Honors, Math BS	Advisor: Ken Ono
(2015)	Hanqiu Xia	Honors, Applied Math	Advisor: Jim Nagy
(2014)	Shannon Buckley	Honors, Applied Math	Advisor: Alessandro Veneziani
(2014)	Hyewon Yoon	Honors, Economics	Advisor: Andrew Francis
(2014)	Tyler Shuman	MS/BS, Political Science	Advisor: Shawn Ramirez

Tenure-Track faculty, teaching mentorship

(2022)	Elizabeth Newman
(2022)	Talea Mayo
(2021)	Liana Yepremyan
(2020/21)	Yiran Wang
(2019)	Hao Huang
(2018)	John Duncan
(2018)	Manuela Manetta

Graduate student teaching mentorship

(2022)	Rohan Nair
(2021)	Marcelo Sales
(2020)	Dylanger Pittman
(2016/17)	Lea Beneish
(2016)	Huiqiang Shi
(2015)	Warren Shull
(2014)	Troy Retter
(2013)	Amanda Clemm
(2013)	Victor Larsen
(2012/14)	Mckenzie West

Synergistic Activities

MathOverflow (2009, Cofounder, with Anton Gerashenko and Scott Morrison)
Created a highly successful math Q&A/discussion website (http://mathoverflow.net). MathOverflow is now incorporated as a nonprofit, and I am President its board of Directors.

Service (Departmental)

(2022-present)	Emory Math 4+1 program committee
(2020-present)	Emory Research-Teaching Fellows in Math hiring committee
(2019)	Chair of Algebra and Number Theory hiring committee
(2017/18)	Graduate Student Research Award committee
(2012-present)	Emory's Algebra Seminar, main organizer
(2012-present)	Undergraduate committee
(2017-present)	Colloquium committee
(2017-present)	Mathematics graduate committee
(2016-present)	Departmental Honors program coordinator
(2016-2018)	Math and CS MS/BS coordinator

Service (Instutional)

(2024-2025)	Faculty Computer Committee
(2021-2024)	Faculty Senate
(2020-2023)	Education Abroad Committee
(2020)	TATTO 600
	(Gave a lightning talk about active learning, and held a followup session with students)
(2012-present)	Emory Scholars Finalists Luncheons
(2015-present)	Budapest Semesters in Mathematics; math faculty contact and CIPA originator
(2012-present)	PACE advising
(2020)	University Nominations Committee
(2020)	Reviewer for the University Research Committee
(2018)	Academic Showcase
(2018)	Stem-Minisymposium judge and screener
(2018)	Oxford Virtual Majors fair
(2015/16/17)	Math and CS "Last Call admissions counsel" pilot

Service (Community)

Arizona Winter School:

(Fall 2014-present)	Organizer and advisory board
(Spring 2021)	Main Scientific Organizer
	Topic: "Arizona Winter Semester": Virtual School on Number Theory
	(200 participants, mostly undergraduates)
(Spring 2020)	Main Scientific Organizer and speaker
	Topic: Nonabelian Chabauty
(Spring 2019)	Main Scientific Organizer
	Topic: Topology and Arithmetic
(Spring 2017)	Scientific Organizer
	Topic: Perfectoids
(Spring 2016)	Main Scientific Organizer (w/Alina Buçur)
	Topic: Analytic methods in Arithmetic Geometry
(Spring 2014)	Project leader w/ Jordan Ellenberg
(Spring 2015)	Project leader w/ Ravi Vakil

Other Conference organization:

(2027)	AIM workshop: Arithmetic Statistics Co-organizers: Alina Bucur, Kiran Kedlaya
(2025)	ICERM: Algebraic points on curves Co-organizers: Abbey Bourdon, Robert Lemke Oliver, Ari Shnidman, Isabel Vogt
(2023)	AMS Mathematical Research Communities: Explicit Computations with Stacks Co-organizers: Andrew Kobin, Soumya Sankar, Libby Taylor, and John Voight
(2022)	Simons Symposium: Geometry of Arithmetic Statistics Co-organizers: Alina Bucur, Jordan Ellenberg, and Ila Varma
(2022 Spring)	Georgia Algebraic Geometry Symposium Co-organizers: Parimala, Brooke Ullery, Suresh Venapally
(2020 Fall)	PAlmetto Joint Arithmetic, Modularity, and Analysis Series (Online) (September 2020 and December 2020) Co-organizers: Jenny Fuselier, Arindam Roy, Padmavathi Srinivasan, Frank Thorne
(2020 Spring)	Georgia Algebraic Geometry Symposium (Rescheduled due to Pandemic) Co-organizers: Parimala, Suresh Venapally
(2019 Fall)	Modular Forms, Arithmetic, and Women in Mathematics (MAAIM) Co-organizers Lea Beneish and Hannah Larson
(2015 Fall)	Georgia Algebraic Geometry Symposium Co-organizers: Parimala, Suresh Venapally
(2015 Fall)	PAlmetto Number Theory Series XXIV; co-organizer: Ken Ono

National Committees:

(2016-2020) AMS Sectional Meetings Travel Grants Committee

Refereeing (and quick opinions) for Acta Arithmetica, Algebra and Number Theory, Algebraic Geometry, Algorithmic Number Theory Symposium, Annales de l'Institut Fourier, Cambridge University Press, Crelle, Compositio, Contemporary Math., Discrete & Computational Geometry Experimental Mathematics International Journal of Number Theory, International Mathematics Research Notices, Inventiones Mathematicae, Journal of Algebra, Journal de Théorie des Nombres de Bordeaux, Journal of the London Mathematical Society, Journal of the European Mathematical Society, Journal Math. Inst. Jussieu, The Mathematical Intelligencer, Mathematische Annalen, Mathematics of Computation, Mathematics Research Letters, Mathematische Zeitschrift, Memoirs of the American Mathematical Society, Monatshefte fr Mathematik, Proceedings of the American Mathematical Society, Proceedings of the London Mathematical Society, Research in Number Theory, Research in the Mathematical Sciences, and Transactions of the American Mathematical Society.

Panelist for the National Science Foundation (2016, 2019).

Reviewer for:

(2020) The Royal Society (UK)
(2018) Netherlands Organisation for Scientific Research
(2017) Israel Science Foundation
(2015) National Security Agency
(2012) Math Reviews

Service (previous departments)

(2010) **UW-Madison Number Theory Seminar** co-organized with Bryden Cais

(2010) **UW-Madison Graduate Participation Seminar**; with Bryden Cais
In this seminar the students give a 'warm up talk' for the week's seminar talk.

(2009) **Arithmetic Geometry and Moduli Spaces in Algebraic Geometry**
Zhejiang University in Hangzhou, China. Planned and ran tutorial sessions.

(2008) **Berkeley Student Algebraic and Arithmetic Geometry Seminar**
with Dan Erman and Tony Varilly

(2007) **Deformation Theory Workshop**; MSRI. Ran problem sessions.

(2007) **Student Number Theory Seminar**, with Tony Varilly. UC Berkeley.

(2005) **Many Cheerful Facts** (UC Berkeley's graduate student colloquium)
Co-organized with Adam Booth.

Invited Talks

(Fall 2024) **ℓ-adic images of Galois for elliptic curves over $\mathbb{Q}$**; Online Seminar talk at Number Theory Web

(Fall 2024) **Angle ranks of abelian varieties**; Seminar talk at the Brown algebra and geometry seminar

(2024 Summer) **Sporadic torsion on elliptic curves**
Plenary lecture at the Connecticut Summer School in Number Theory

(2024 Spring) **The Canonical Ring of a Stacky Curve**
AG@PUI seminar (Online)

(2024 Spring) **The Canonical Ring of a Stacky Curve**
Seminar at Valley Geometry Seminar (at UMASS Amherst)

(2024 Spring) **ℓ-adic images of Galois for elliptic curves over $\mathbb{Q}$**
Seminar at Wesleyan

(2024 Spring) **Beyond Fermat's last theorem**
Colloquium at Colby College

(2024 Winter) **Sporadic Cubic Torsion**
Joint Meetings, special session on Arithmetic geometry with a view toward computation

(2023 Fall) **Angle ranks of abelian varieties**
Seminar talk at Dartmouth College

(2023 Fall) **Diophantine and Tropical Geometry**
Colloquium at University of Pennsylvania

(2023 Spring) **ℓ-adic images of Galois for elliptic curves over $\mathbb{Q}$**
Invited lecture at SLMath's Diophantine Geometry Program Research Seminar

(2023 Spring) **Diophantine and Tropical Geometry**
Colloquium at University of Toronto

(2023 Spring) **Beyond Fermat's Last Theorem**
Colloquium at Amherst College

(2023 Spring) **ℓ-adic images of Galois for elliptic curves over $\mathbb{Q}$**
Invited lecture at the Simons Collaboration on Arithmetic Geometry, Number Theory, and Computation Annual Meeting

(2023 Spring) **Distributions of unramified extensions of global fields**
Joint Mathematics Meetings, Special Session on "Arithmetic Statistics"

(2022 Spring) **ℓ-adic images of Galois for elliptic curves over $\mathbb{Q}$**
Invited lecture at the Simons Collaboration on Arithmetic Geometry, Number Theory, and Computation Annual Meeting, cancelled due to Omicron

(2021 Summer) **Arithmetic Statistics**
Lecture series at UC Berkeley RTG Research Workshop

(2021 Summer) **Rational Points and Galois Representations**
Problem session moderator
online conference at University of Pittsburg

(2021 Spring) **Diophantine and Tropical Geometry**

Colloquium at The Ohio State University

(2021 Spring) **Sporadic points on modular curves**
Joint Berkeley–Caltech–Stanford Number Theory Seminar

(2020 Fall) **The canonical ring of a stacky curve**
Plenary Talk at Madison Moduli Weekend

(2020 Fall) **The canonical ring of a stacky curve**
Seminar Talk at University of Arkansas

(2020 Summer) **Sporadic points on modular curves**
Chicago Number Theory Day

(2020 Spring) **Classical Chabauty**
Arizona Winter School lecture series (4 lectures)

(2020 Spring) **Moduli spaces and arithmetic statistics**
VANTAGE

(2019 Fall) **Counting fields, rational points, and heights on stacks**
Berkeley Number Theory Seminar

(2019 Summer) **Mazur's "Program B"**
Plenary talk at Rational Points 2019, Franken-Akademie Schloss Schney, Germany

(2019 Summer) **Mazur's "Program B"**
Plenary talk at "Rational points on irrational varieties" part of the "Reinventing rational points" trimester program at Institut Henri Poincare, Paris, France

(2019 Summer) **Progress on Mazur's "Program B"**
Seminar talk at Universite Blaise Pascal Clermont-Ferrand 2, Aubiere, France

(2019 Spring) **Arithmetic of Stacks**
Seminar talk at University of Wisconsin, Madison

(2019 Spring) **Progress on Mazur's "Program B"**
AMS Special Session on "Algebraic Points", University of Hawaii.

(2019 Spring) **The canonical ring of a stacky curve**
Seminar Talk at University of Georgia

(2019 Spring) **Beyond Fermat's last theorem**
Colloquium at Miami University

(2019 Winter) **Progress on Mazur's "Program B"**
Joint Mathematics Meetings, Special Session on "Number Theory, Arithmetic Geometry, and Computation"

(2019 Winter) **Counting fields, rational points, and heights on stacks**
Joint Mathematics Meetings, Special Session on "Arithmetic Statistics"

(2018 Fall) **Progress on Mazur's "Program B"**
Northwestern University

(2018 Summer) **Progress on Mazur's "Program B"**
Oberwolfack, "Explicit Methods"

(2018 Summer) **Counting fields, rational points, and heights on stacks**
"Rational points on Schiermonnikoog"

(2018 Summer) **Progress on Mazur's "Program B"**
"Torsion on Elliptic Curves", Zagreb, Croatia

(2018 Summer) **Counting fields, rational points, and heights on stacks**
BIRS Oaxaca, "Algebraic and Analytic methods for integral and rational points on varieties"

(2018 Spring) **Diophantine and p-adic Geometry**
Speaking at the University of Arkansas 43rd annual Spring Lecture Series, "Old and New Themes in p-adic cohomology"

(2018 Spring) **The canonical ring of a stacky curve**
Seminar Talk at Johns Hopkins University

(2018 Spring) **The canonical ring of a stacky curve**

Seminar Talk at Colorado State University
(2018 Spring) **Beyond Fermat's last theorem**
Colloquium at Colorado State University
(2018 Spring) **The canonical ring of a stacky curve**
Seminar Talk at Rice University
(2018 Winter) **Beyond Fermat's last theorem**
Joint Mathematics Meetings in San Diego, special session on "Accessible Problems in Modern Number Theory"
(2017 Fall) **Beyond Fermat's last theorem**
Portland State Colloquium
(2017 Fall) **Progress on Mazur's "Program B"**
Southern California Number Theory Day
(2017 Fall) **Progress on Mazur's "Program B"**
Stanford University Number Theory Seminar
(2017 Fall) **The canonical ring of a stacky curve**
Seminar talk at University of Arizona
(2017 Fall) **Progress on Mazur's "Program B"**
University of Wisconsin, Madison Number Theory Seminar
(2017 Spring) **Progress on Mazur's "Program B"**
BIRS Workshop on "Arithmetic Aspects of Explicit Moduli Problems"
(2017 Spring) **Tropical Geometry and Uniformity of Rational Points**
Colloquium at Reed
(2017 Spring) **Tropical Geometry and Uniformity of Rational Points**
Seminar talk at University of Rochester
(2017 Spring) **Tropical Geometry and Uniformity of Rational Points**
Colloquium at Tufts University
(2017 Spring) **Tropical Geometry and Uniformity of Rational Points**
Conference talk at Lectures in Arithmetic Geometry at Rice
(2017 Spring) **Tropical Geometry and Uniformity of Rational Points**
Seminar talk at University of California, Berkeley
(2017 Winter) **Tropical Geometry and Uniformity of Rational Points**
Joint Mathematics Meetings in Atlanta, special session on "Minimal integral models of algebraic curves"
(2016 Fall) **The canonical ring of a stacky curve**
Seminar talk at University of Miami
(2016 Fall) **The canonical ring of a stacky curve**
Seminar talk at University of Kentucky
(2016 Fall) **Fundamental groups and reconstruction theorems**
Expository talk at "Kummer Classes and Anabelian Geometry" (focused on expositing Mochizuki's proof of the ABC conjecture)
University of Vermont
(2016 Spring) **Sporadic cubic torsion**
SERMON, James Madison University,
(2016 Spring) **Progress on Mazur's "Program B"**
AMS Special Session on "Elliptic Curves", University of Georgia
(2016 Spring) **The canonical ring of a stacky curve**
Seminar talk at University of Tennessee
(2016 Spring) **Uniformity and Tropical Geometry**
Colloquium at University of Tennessee
(2015 Fall) **The canonical ring of a stacky curve**
Seminar talk at University of Oregon

(2015 Fall) **Uniformity and Tropical Geometry**
Colloquium at University of Oregon

(2015 Fall) **Uniformity and Tropical Geometry**
Number Theory Seminar, UW-Madison

(2015 Fall) **Hilbert schemes of canonically embedded curves of low genus**
Geometry Seminar, UW-Madison

(2015 Summer) **Uniformity and Tropical Geometry**
AIM workshop Degenerations in algebraic geometry

(2015 Summer) **The canonical ring of a stacky curve**
2015 AMS summer institute in Algebraic Geometry, Utah

(2015 Spring) **Uniformity and Tropical Geometry**
Coleman Memorial Conference

(2015 Spring) **Uniformity and Tropical Geometry**
Colloquium at University of Copenhagen

(2015 Spring) **Diophantine and Tropical Geometry**
Cornell Number Theory Seminar

(2015 Spring) **Diophantine and Tropical Geometry**
UIC Number Theory Seminar

(2015 Spring) **Diophantine and Tropical Geometry**
Stanford Number Theory Seminar

(2015 Spring) **Diophantine and Tropical Geometry**
Duke Number Theory Seminar

(2015 Spring) **Uniformity and Tropical Geometry**
SERMON, Winthrop University,

(2015 Spring) **Diophantine and Tropical Geometry**
UC-Boulder Colloquium

(2015 Spring) **The canonical ring of a stacky curve**
UC-Boulder Algebraic Geometry Seminar

(2015 Spring) **Diophantine and Tropical Geometry**
UW-Madison Colloquium

(2015 Spring) **The canonical ring of a stacky curve**
UW-Madison Number Theory Seminar

(2014 Fall) **Gauss composition and integral arithmetic invariant theory**
AMS Special Session on "Connections in Number Theory" Greensboro, NC

(2014 Fall) **The canonical ring of a stacky curve**
AMS Special Session on "Automorphic forms and related topics" Greensboro, NC

(2014 Fall) **Tropical geometry, p-adic integration, and uniformity**
AMS Special Session on "Combinatorics and Algebraic Geometry", San Francisco, CA

(2014 Fall) **The canonical ring of a stacky curve**
University of Virginia, VA

(2014 Spring) **Overconvergent de Rham-Witt cohomology and algebraic stacks**
AMS special session on "Arithmetic and Differential Algebraic Geometry", Albuquerque, NM

(2014 Spring) **Rational points on curves and tropical geometry**
BIRS Workshop on "Specialization of Linear Series for Algebraic and Tropical Curves", Banff, canada

(2014 Spring) **Rational points on curves and tropical geometry**
AMS special session on "Arithmetic of Algebraic Curves", Knoxville, TN

(2014 Spring) **The canonical ring of a stacky curve**
University of South Carolina, SC

(2014 Spring) **Rational points on curves and tropical geometry**
Joint Mathematics Meetings in Baltimore, special session on "Tropical and Nonarchimedean Geom-

etry"

(2013 Fall) **Abelian varieties with maximal monodromy**
Clemson Number Theory Seminar

(2013 Fall) **Elliptic curves over $\mathbb{Q}$ and 2-adic images of Galois representations**
PANTS
Davidson, NC

(2013 Fall) **Elliptic curves over $\mathbb{Q}$ and 2-adic images of Galois representations**
SIAM Conference on Applied Algebraic Geometry at Colorado State University

(2013 Spring) **Beyond Fermat's last theorem**
Wake Forest University Colloquium

(2013 Spring) **Explicit Modular approaches to Generalized Fermat Equations**
University of Arizona Colloquium

(2013 Spring) **Abelian Varieties with Maximal Monodromy**
University of Arizona Number Theory Seminar

(2013 Spring) **Families of abelian varieties with maximal monodromy**
AMS special session on Monodromy, Denver, CO

(2013 Winter) **Overconvergent de Rham-Witt Cohomology for Algebraic stacks**
Joint mathematics meeting, special session on Witt Vectors, San Diego, CA,

(2013 Winter) **Abelian Varieties with Maximal Monodromy**
Joint mathematics meeting, special session on Geometry and Number Theory, San Diego, CA

(2012 Fall) **Random Dieudonné Modules**
Workshop: Arithmetic of abelian varieties in families, EPFL, Lausanne, Switzerland

(2012 Fall) **Explicit Modular approaches to Generalized Fermat Equations**
Georgia Tech Number Theory Seminar, Atlanta, GA

(2012 Fall) **Random Dieudonné Modules**
PANTS XVIII, Wake Forest, NC

(2012 Fall) **Abelian Varieties with Maximal Monodromy**
Colorado State Number Theory Seminar, Ft. Collins, Colorado

(2012 Summer) **Algebraic Stacks and p-adic Cohomology**
Series of 4 lectures, Padua

(2012 Spring) **Abelian Varieties with Maximal Monodromy**
Number Theory Seminar, UC Berkeley

(2012 Spring) **Abelian Varieties with Maximal Monodromy**
Number Theory Seminar, UC Irvine

(2012 Spring) **Random Dieudonné Modules**
AMS special session on Arithmetic Geometry, University of Hawaii, Honolulu

(2012 Spring) **Rigid Cohomology for Algebraic Stacks**
New York Joint Number Theory Seminar, CUNY

(2012 Spring) **Abelian Varieties with Maximal Monodromy**
Number Theory Seminar, UGA

(2012 Winter) **Random Dieudonné Modules**
Joint Meetings, special session on Rational Points on Varieties

(2012 Winter) **Rigid Cohomology for Algebraic Stacks**
Joint Meetings, special session on Arithmetic Geometry

(2011 Fall) **Random Dieudonné Modules**
Number Theory Seminar, Harvard University

(2011 Fall) **Rigid Cohomology for Algebraic Stacks**
Algebraic Geometry Seminar, Caltech.

(2011 Fall) **Random Dieudonné Modules**
Athens-Atlanta Joint Number Theory Seminar, at Georgia Tech)

(2011 Fall) **Explicit Modular approaches to Generalized Fermat Equations**

AMS special session on Modular Forms and Elliptic Curves, Wake Forest University, NC
(2011 Spring) **Explicit Modular approaches to Generalized Fermat Equations**
Emory University Colloquium, Emory University
(2011 Spring) **Explicit Modular approaches to Generalized Fermat Equations**
UW-Madison Number Theory Seminar, UW Madison.
(2011 Spring) **Rigid Cohomology for Algebraic Stacks**
Algebraic Geometry Seminar, Rice University.
(2010 Fall) **Rigid Cohomology for Algebraic Stacks**
Fall Southeastern AMS Section Meeting, Special Ses- sion on Applications of Non-Archimedean Geometry
Richmond
VA (Fall 2010)
(2010 Fall) **Rigid Cohomology for Algebraic Stacks**
UW-Madison Number Theory Seminar, UW Madison.
(2010 Spring) **Rigid Cohomology for Algebraic Stacks**
Berkeley Number Theory Seminar, UC Berkeley.
(2010 Spring) **Rigid Cohomology for Algebraic Stacks**
Algebraic Geometry Seminar, UBC.
(2010 Spring) **Explicit Modular approaches to Generalized Fermat Equations.**
Number Theory Seminar, UBC.
(2010 Spring) **Explicit Modular approaches to Generalized Fermat Equations.**
Number Theory Seminar, Stanford.
(2008 Spring) **The Chabauty-Coleman bound at a prime of bad reduction**
Berkeley Number Theory Seminar, UC Berkeley.
(2005 Summer) **The Galois Group of Cyclotomic Fields of Fermat Primes**
Budapest Semesters Reunion, Budapest, Hungary.

Panels

(2023 Spring) **Writing and Publishing Research Work**; SLMath's Career Development Seminar
(2020 Summer) **Mentoring and being mentored**; Lunch in the time of Covid.

Public presentations

(2023 Spring) **Beyond Fermat's Last Theorem**; Math club, Amherst College
(2018 Fall) **Beyond Fermat's Last Theorem**; Emory math club, Emory University
(2015 Spring) **Beyond Fermat's Last Theorem**; Georgia State math club, Georgia State University
(2013 Spring) **Mathoverflow**; ScienceOnline2013, Raleigh, NC
(2012 Spring) **Beyond Fermat's Last Theorem**; EUMMA (Emory Undergraduate Mathematics Major Association, Emory University
(2011 Spring) **Mathoverflow**; Special Lunch Seminar, Rice University.

Software Skills

Proficient in Magma and Unix/Bash

More Info

Visit https://dmzb.github.io/ for more detailed information, including preprints and course webpages.