CONTACT INFORMATION	Seeley Mudd 502 Dept. of Mathematics and Statistics Amherst College Amherst, MA 01002 USA	*Phone:* (+1) 510 508 0255 *Email:* david.zureick.brown@gmail.com *Web:* https://dmzb.github.io/ 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)

(2023-2026) **NSF Standard Grant** (DMS-2302356, Emory University, $210,000.00)
(2023-2028) **Simons Foundation: Travel Support for Mathematicians** (Declined)
(2016-2022) **NSF Career** (DMS-1555048 Emory University, $416,997.00)
(2011-2013) **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.

PUBLICATIONS
(SUBMITTED)

18. **A predicted distribution for Galois groups of maximal unramified extensions**, with Yuan Liu and Melanie Matchett Wood

PREPRINTS

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

PROCEEDINGS

20. **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)

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

PUBLICATIONS
(NON-RESEARCH)

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

PUBLICATIONS
(NON-MATH)

23. **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

24. **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.

Amherst College, Amherst, MA
Professor.

Undergraduate[1]

Fall 2023	Linear algebra	Math 271
Fall 2023	Mathematical Reasoning and Proof	Math 220

Emory University, Atlanta, GA
Assistant/Associate Professor.

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

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

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

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[1]See https://dmzb.github.io/teaching/oldCourses.html for course webpages

Reading courses Math 497R[2]

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[3]

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)	(Math 490)
	http://www.math.emory.edu/~dzb/teaching/490Spring2011/	
(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 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)

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

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

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

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)   Roberto Hernandez   (expected)

  (2025)   Santiago Arango-Piñeros   (expected)

  (2025)   Alexis Newton   (expected)

  (2024)   Michael Cerchia   (expected)

  (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: . . .

  (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)

(2024)	Alan Li	*"Ramsey Theory: greatest hits (working title)"*

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)[4]

(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	

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

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[4]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 (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). Math-Overflow 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 (UNIVERSITY)	(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:

(2022)	ICERM: Algebraic points on curves
	Co-organizers: Abbey Bourdon, Robert Lemke Oliver, Ari Shnidman, Isabel Vogt
(2022)	Simons Symposium: Geometry of Arithmetic Statistics
	Co-organizers: Alina Bucur, Jordan Ellenberg, and Ila Varma
(Spring 2022)	Georgia Algebraic Geometry Symposium
	Co-organizers: Parimala, Brooke Ullery, Suresh Venapally
(Fall 2020)	PAlmetto Joint Arithmetic, Modularity, and Analysis Series (Online)
	(September 2020 and December 2020)
	Co-organizers: Jenny Fuselier, Arindam Roy, Padmavathi Srinivasan, Frank Thorne
(Spring 2020)	Georgia Algebraic Geometry Symposium (Rescheduled due to Pandemic)
	Co-organizers: Parimala, Suresh Venapally
(Fall 2019)	Modular Forms, Arithmetic, and Women in Mathematics (MAAIM)
	Co-organizers Lea Beneish and Hannah Larson
(Fall 2015)	Georgia Algebraic Geometry Symposium
	Co-organizers: Parimala, Suresh Venapally
(Fall 2015)	PAlmetto Number Theory Series XXIV; co-organizer: Ken Ono

National Committees:

(2016-2020)   AMS Sectional Meetings Travel Grants Committee

Refereeing 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, Mathematische Annalen, Mathematics of Computation, Mathematics Research Letters, Mathematische Zeitschrift, Monatshefte für 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	(Winter 2024) **Sporadic Cubic Torsion**; Joint Meetings, special session on Arithmetic geometry

with a view toward computation

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

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

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

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

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

(Spring 2023) 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

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

(Spring 2022) 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

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

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

(Spring 2021) **Diophantine and Tropical Geometry**; Colloquium at The Ohio State University

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

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

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

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

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

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

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

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

(Summer 2019) **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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(Spring 2018) **The canonical ring of a stacky curve**; Seminar Talk at Colorado State University

(Spring 2018) **Beyond Fermat's last theorem**; Colloquium at Colorado State University

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

(Winter 2018) **Beyond Fermat's last theorem**; Joint Mathematics Meetings in San Diego, special session on "Accessible Problems in Modern Number Theory"

(Fall 2017) **Beyond Fermat's last theorem**; Portland State Colloquium

(Fall 2017) **Progress on Mazur's "Program B"**; Southern California Number Theory Day

(Fall 2017) **Progress on Mazur's "Program B"**; Stanford University Number Theory Seminar

(Fall 2017) **The canonical ring of a stacky curve**; Seminar talk at University of Arizona

(Fall 2017) **Progress on Mazur's "Program B"**; University of Wisconsin, Madison Number Theory Seminar

(Spring 2017) **Progress on Mazur's "Program B"**; BIRS Workshop on "Arithmetic Aspects of Explicit Moduli Problems"

(Spring 2017) **Tropical Geometry and Uniformity of Rational Points**; Colloquium at Reed

(Spring 2017) **Tropical Geometry and Uniformity of Rational Points**; Seminar talk at University of Rochester

(Spring 2017) **Tropical Geometry and Uniformity of Rational Points**; Colloquium at Tufts University

(Spring 2017) **Tropical Geometry and Uniformity of Rational Points**; Conference talk at Lectures in Arithmetic Geometry at Rice

(Spring 2017) **Tropical Geometry and Uniformity of Rational Points**; Seminar talk at University of California, Berkeley

(Winter 2017) **Tropical Geometry and Uniformity of Rational Points**; Joint Mathematics Meetings in Atlanta, special session on "Minimal integral models of algebraic curves"

(Fall 2016) **The canonical ring of a stacky curve**; Seminar talk at University of Miami

(Fall 2016) **The canonical ring of a stacky curve**; Seminar talk at University of Kentucky

(Fall 2016) **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

(Spring 2016) **Sporadic cubic torsion**; SERMON, James Madison University,

(Spring 2016) **Progress on Mazur's "Program B"**; AMS Special Session on "Elliptic Curves", University of Georgia

(Spring 2016) **The canonical ring of a stacky curve**; Seminar talk at University of Tennessee

(Spring 2016) **Uniformity and Tropical Geometry**; Colloquium at University of Tennessee

(Fall 2015) **The canonical ring of a stacky curve**; Seminar talk at University of Oregon

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Irvine

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

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

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

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

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

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

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

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

(Fall 2011) **Explicit Modular approaches to Generalized Fermat Equations**; AMS special session on Modular Forms and Elliptic Curves, Wake Forest University, NC

(Spring 2011) **Explicit Modular approaches to Generalized Fermat Equations**; Emory University Colloquium, Emory University

(Spring 2011) **Explicit Modular approaches to Generalized Fermat Equations**; UW-Madison Number Theory Seminar, UW Madison.

(Spring 2011) **Rigid Cohomology for Algebraic Stacks**; Algebraic Geometry Seminar, Rice University.

(Fall 2010) **Rigid Cohomology for Algebraic Stacks**; Fall Southeastern AMS Section Meeting, Special Ses- sion on Applications of Non-Archimedean Geometry; Richmond; VA (Fall 2010)

(Fall 2010) **Rigid Cohomology for Algebraic Stacks**; UW-Madison Number Theory Seminar, UW Madison.

(Spring 2010) **Rigid Cohomology for Algebraic Stacks**; Berkeley Number Theory Seminar, UC Berkeley.

(Spring 2010) **Rigid Cohomology for Algebraic Stacks**; Algebraic Geometry Seminar, UBC.

(Spring 2010) **Explicit Modular approaches to Generalized Fermat Equations.**; Number Theory Seminar, UBC.

(Spring 2010) **Explicit Modular approaches to Generalized Fermat Equations.**; Number Theory Seminar, Stanford.

(Spring 2008) **The Chabauty-Coleman bound at a prime of bad reduction**; Berkeley Number Theory Seminar, UC Berkeley.

(Summer 2005) **The Galois Group of Cyclotomic Fields of Fermat Primes**; Budapest Semesters Reunion, Budapest, Hungary.

PANELS   (Spring 2023) **Writing and Publishing Research Work**; SLMath's Career Development Seminar

(Summer 2020) **Mentoring and being mentored**; Lunch in the time of Covid.

PUBLIC PRESENTATIONS   (Spring 2023) **Beyond Fermat's Last Theorem**; Math club, Amherst College

(Fall 2018) **Beyond Fermat's Last Theorem**; Emory math club, Emory University

(Spring 2015) **Beyond Fermat's Last Theorem**; Georgia State math club, Georgia State University

(Spring 2013) **Mathoverflow**; ScienceOnline2013, Raleigh, NC

(Spring 2012) **Beyond Fermat's Last Theorem**; EUMMA (Emory Undergraduate Mathematics

Major Association, Emory University
(Spring 2011) **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.