Andrew Bridy

CONTACT INFORMATION

Department of Political Science
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APPOINTMENTS

Yale University, Department of Political Science and Department of Computer Science

Lecturer, July 2019–Present

Yale University, Department of Mathematics

Postdoctoral Associate, July 2018–June 2019

Texas A&M University, Department of Mathematics

Instructional Assistant Professor, Fall 2016–June 2018

University of Rochester, Department of Mathematics

Visiting Assistant Professor, Fall 2014–Spring 2016

EDUCATION

University of Wisconsin–Madison

Ph.D., Mathematics, July 2014

Dissertation: The Artin-Mazur Zeta Function of a Rational Map in Positive Characteristic
Minor Area: Computer Science
Advisor: Eric Bach

Cornell University

A.B. Mathematics cum laude, May 2004

RESEARCH INTERESTS

Arithmetic dynamics, number theory, algebraic geometry, Galois theory, finite fields, finite automata

RESEARCH AND PUBLICATIONS

"Iterated monodromy groups of rational functions and periodic points over finite fields" (with Rafe Jones, Greg Kelsey, and Russell Lodge), in preparation.

"Mahler equations of p-regular series via difference algebra of weighed automata," in preparation.

"Toward the inverse Galois problem for polynomial systems," (with Frank Sottile), in preparation.

"The Arakelov-Zhang pairing and Julia sets," (with Matt Larson), submitted.

"Finite index theorems for iterated Galois groups of unicritical polynomials," (with John Doyle, Dragos Ghioca, Liang-Chung Hsia, and Thomas J. Tucker), submitted.

"The cycle structure of unicritical polynomials," (with Derek Garton), *Int. Math. Res. Not. IMRN*, to appear.

"Finite index theorems for iterated Galois groups of cubic polynomials," (with Thomas J. Tucker), *Math. Ann.* 373 (2019), no. 1–2, 37–72.

"The generalized Nagell-Ljunggren problem: powers with repetitive representations," (with Robert J. Lemke Oliver, Arlo Shallit, and Jeffrey Shallit), *Experimental Mathematics*, to appear.

"*ABC* implies a Zsigmondy principle for ramification," (with Thomas J. Tucker), *J. Number Theory* 182 (2018), 296–310.

"Finite ramification for preimage fields of postcritically finite morphisms," (with Patrick Ingram, Rafe Jones, Jamie Juul, Alon Levy, Michelle Manes, Simon Rubinstein-Salzedo, and Joseph Silverman), *Math. Res. Lett.* 24 (2017), no. 6, pp. 1633–1647

"Dynamically distinguishing polynomials," (with Derek Garton), *Res. Math. Sci.* 4 (2017), no. 13, 1–17.

"Automatic sequences and curves over finite fields," *Algebra and Number Theory*, 11 (2017), no. 3, 685–712

"The Artin-Mazur zeta function of a dynamically affine rational map in positive characteristic," *J. Théor. Nombres Bordeaux*, 28 (2016), no. 2, 301–324.

"On the number of distinct functional graphs of affine-linear transformations over finite fields," (with Eric Bach), *Linear Algebra and Appl.* 439 (2013), 1312–1320.

"Transcendence of the Artin-Mazur zeta function for polynomial maps of $\mathbb{A}^1(\overline{\mathbb{F}}_p)$," *Acta Arith.* 156 (2012), no. 3, 293–300.

"A count of maximal small copies in Multibrot sets," (with Rodrigo Pérez), *Nonlinearity* 18 (2005), no. 5, 1945–1953.

Honors and Awards

University of Wisconsin Teaching Evaluation of "Superior" for all semesters taught, 2008-2014
NSF Research Training Groups Fellow (PI Jordan Ellenberg), Spring 2012 and Spring 2013
University of Wisconsin University Housing Honored Instructors Award, Spring 2011
University of Wisconsin Math Department TA Teaching Award, Spring 2010
University of Wisconsin VIGRE Training Grant, Summer 2009

Teaching Experience

Texas A&M University: Engineering Mathematics I, Linear Algebra

University of Rochester: Intro to Probability, Calculus IA, Calculus IIA, Intro to Discrete Math, Intro to Algebra I

University of Wisconsin–Madison: College Algebra, Calculus and Analytic Geometry 1, Calculus and Analytic Geometry 2, Elementary Matrix and Linear Algebra, Elementary Number Theory, Analysis 1

Mentored University of Rochester students on summer research in automata theory.

Currently supervising multiple Yale undergraduate senior thesis projects.

Extensive work with underrepresented minorities through high school and Peace Corps teaching experience and through the Wisconsin Emerging Scholars program.

K-12 Teaching Experience

Phoenix Charter Academy, Chelsea, MA, USA

High School Math Teacher: Taught pre-algebra, algebra, and geometry to bilingual, at-risk, and returning high school students in the greater Boston area. (Fall 2007–Spring 2008)

Ithaca High School, Ithaca, NY, USA

High School Mathematics Teaching Assistant. (Fall 2004–Spring 2005)

Other Work Experience

Peace Corps Honduras, Tegucigalpa, Honduras

Health Volunteer: Directed talks and workshops and developed curriculum for HIV/AIDS prevention, focused on men aged 14-30. (January 2006–July 2007)

Invited Talks

2019: University of Hawaii HINT
2018: Joint Meetings, AMS Eastern Sectional, Yale University, Amherst College (Five College Seminar), Brown University, IDA-CCS
2017: Emory University, CRM, Tufts University, University of Wisconsin–Madison, CMS Winter Meeting (University of Waterloo)
2016: University of Hawaii, UC Berkeley, University of Pennsylvania, University of Rochester, Texas A&M University
2015: Binghamton University, University of Waterloo, Upstate Number Theory (Cornell University), Cornell University, Portland State University
2014: University of Rochester, Portland State University, Joint Meetings
2013: BIRS, Joint Meetings, University of Wisconsin–Madison
2012: ICERM

Service Activities

Organizer for AMS Western/Central Sectional Meeting 2019, Arithmetic Dynamics session
Organizer for Yale Algebra and Number Theory Seminar
Organizer for Texas A&M Number Theory Seminar
Anonymous Referee for Proceedings of the AMS, Journal of Number Theory, Algebra and Number Theory, IMRN, Houston Journal of Mathematics, Annales de la Faculté des Sciences de Toulouse, Contemporary Mathematics, Monatshefte für Mathematik, Involve
Proposal Reviewer for National Science Center of Poland
University of Wisconsin TA Evaluation Committee
University of Wisconsin TA Training Program

Computer Skills

Proficient in the programming languages *Python, C,* and *Java* and the computer algebra systems *Magma*, *Maple*, *Macaulay 2*, and *Sage*. Experience in working with large data sets, in particular the use of spatial partitioning algorithms for clustering and nearest neighbor searches.

Languages

English (native), Spanish (advanced), Russian (basic reading).

References

Eric Bach
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Department of Computer Sciences
University of Wisconsin–Madison
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Michael Zieve
Department of Mathematics
University of Michigan
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Jeffrey Shallit
School of Computer Science
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Thomas J. Tucker
Department of Mathematics
University of Rochester
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Frank Sottile
Department of Mathematics
Texas A&M University
College Station, TX 77843
sottile@math.tamu.edu

Kalyani Madhu (Teaching Reference)
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