Daniel Miller

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Research interests

I study the statistics of Frobenius elements coming from curves of genus one or two. I am especially interested in the conjectured distribution of these Frobenius elements, rate of convergence to the conjectured Sato–Tate distribution, and the interactions of these with the analytic behavior of "curious L-functions" coming from almost-everywhere continuous functions on the space of conjugacy classes of the associated Sato–Tate group.

Education

2012–2017	**Ph.D. candidate in Mathematics**, *Cornell University*.
2015–2017	**M.S. in Computer Science**, *Cornell University*.
2009–2012	**Bachelor of Science**, *University of Nebraska at Omaha*, 4.0 GPA.

- Highest honors in Mathematics
- Minor in Computer Science

Publications

Casey Kelleher, Daniel Miller, Trenton Osborn, and Anthony Weston. Strongly non-embeddable metric spaces. *Topology Appl.*, 159(3):749–755, 2012.

Casey Kelleher, Daniel Miller, Trenton Osborn, and Anthony Weston. Polygonal equalities and virtual degeneracy in L_p-spaces. *J. Math. Anal. Appl.*, 415(1):247–268, 2014.

Conference talks

April 2013	*Modular curves of infinite level [after Jared Weinstein]*, Upstate New York Number Theory Conference, Binghamton University
May 2013	*Perfectoid spaces*, Ramification and Hopf–Galois module theory, University of Nebraska at Omaha
April 2014	*Average ranks of Selmer groups and maximal isotropic subspaces [after Bjorn Poonen]*, Upstate New York Number Theory Conference, University at Buffalo

Other talks

November 2012	*Algebraic topology in positive characteristic*, Olivetti Club, Cornell University

January 2013	*Taniyama-Shimura, the $R = \mathbf{T}$ theorem and Fermat-Wiles*, Number Theory Seminar, Cornell University
April 2013	*Towards perfectoid spaces*, Number Theory Seminar, Cornell University
April 2013	*A bestiary of Frobenii*, Olivetti Club, Cornell University
July 2013	*Sheaves and forcing*, Informal logic seminar, Cornell University
September 2013	*The Weil Conjectures for dummies*, Number Theory Seminar, Cornell University
November 2013	*Taniyama-Shimura revisited*, Number Theory Seminar, Cornell University
January 2014	*L-functions and equidistribution in number theory*, Olivetti Club, Cornell University
February 2014	*Perfectoid spaces I: history and motivation*, Number Theory Seminar, Cornell University
March 2014	*Perfectoid spaces II: recent applications*, Number Theory Seminar, Cornell University
August 2014	*Automorphic representations and deformation theory in arithmetic geometry*, Informal seminar on knots and primes, Cornell University
September 2014	*A brief tour of Grothendieck-Teichmüller theory*, Olivetti Club, Cornell University
November 2014	*Local Langlands for* $\mathrm{GL}(n)$ *over p-adic fields [after Peter Scholze]*, Number Theory Seminar, Cornell University
February 2015	*(p-adic) Hodge theory and period rings*, Olivetti Club, Cornell University
September 2015	*Torsion in the cohomology of arithmetic groups*, Olivetti Club, Cornell University

Teaching experience

Fall 2013	Teaching assistant for MATH 1220: Honors Calculus II
Spring 2014	Teaching assistant for MATH 2220: Multivariable Calculus
Fall 2014	Teaching assistant for MATH 1220: Honors Calculus II
Spring 2015	Grader for MATH 6320: Graduate Algebra II
Fall 2015	Grader for MATH 6310: Graduate Algebra I
Spring 2016	Czar's assistant for MATH 1110/1120: Calculus I/II

Graduate coursework

- Algebraic Number Theory
- Algebra I & II
- Algebraic Geometry
- Algebraic Topology I
- Arithmetic of Curves
- Non-Archimedean Geometry
- Operating Systems
- Toric Varieties
- Perverse Sheaves
- Ranks of Elliptic Curves

- Automorphic Forms
- Cloud Computing
- Commutative Algebra
- Lie Algebras

- Real Analysis
- Smooth Manifolds
- Homological Algebra
- Linear Algebraic Groups

Relevant skills

Languages	English, (mathematical) French
Programming	C, C#, Java, TEX, Python

Reference

Ravi Ramakrishna, Professor of Mathematics, Cornell University, (607) 257 6972, `ravi@math.cornell.edu`