

Sarah Trebat-Leder

CONTACT INFORMATION strebat@emory.edu

RESEARCH INTERESTS Number Theory - elliptic curves, modular and mock modular forms, moonshine

EDUCATION **Princeton University, Princeton, NJ**

A.B. in mathematics with high honors and Phi Beta Kappa, June 2013

- Senior Thesis: Ranks of elliptic curves and a generalization of the congruent number problem
Advisor: Christopher Skinner

Emory University, Atlanta, GA

Mathematics PhD student with advisor Ken Ono

- NSF Graduate Fellowship
- Woodruff Fellowship

PUBLICATIONS *ℓ -adic properties of partition functions*; with Eva Belmont, Holden Lee, and Alexandra Musat; *Monatsh. Math.* 173 (2014), no. 1, 1 – 34.

Elliptic curves with full 2-torsion and maximal adelic Galois representation; with David Corwin, Tony Feng, Zane K. Li; *Math. Comp.* 83 (2014), no. 290, 2925 – 2951.

Abelian varieties with real multiplication and maximal image of Galois; with David Corwin, Tony Feng, Zane K. Li, D. Zureick-Brown; in preparation.

Classical and umbral moonshine: connections and p -adic properties; with Ken Ono and Larry Rolen; *J. Ramanujan math. Soc.* 30 (2015), no. 2, 135 – 159.

Elliptic curves with everywhere good reduction over quadratic number fields; with Amanda Clemm; Accepted at *Journal of Number Theory*.

On p -adic modular forms and the Bloch-Okounkov Theorem; with Michael Griffin and Marie Jameson; Submitted.

The 1729 $K3$ Surface; with Ken Ono; Submitted.

RESEARCH TALKS Jan 2012: *ℓ -adic properties of partition functions*, Joint Meetings, ASM Session on Number Theory, Field Theory, and Polynomials

April 2012: *Modular forms and partition functions*, Princeton Undergraduate Colloquium

Jan 2013: *Elliptic curves with full 2-torsion and maximal adelic Galois representation*, Joint Meetings, Undergraduate Poster Session, winner of outstanding presentation award

Sept 7 2013: *Elliptic curves with full 2-torsion and maximal adelic Galois representation*, PANTS XX

Oct 16 2013: *Elliptic curves and abelian surfaces with maximal adelic image*, Clemson Algebraic Geometry and Number Theory Seminar

Apr 1 2014: *Number theory of moonshine*, Emory Algebra and Number Theory Seminar

Apr 12 2014: *Number theory of moonshine*, AMS Central Sectional Meeting, Special Session on Recent Developments in Number Theory

May 12 2014: *Connecting classical and umbral moonshine*, Automorphic Forms Workshop

PROGRAMS
ATTENDED

May 2010 IAS Program for Women and Mathematics
Topic: p-adic Langlands Program
May 2011 IAS Program for Women and Mathematics
Topic: Sparsity and Computation
Summer 2011 Emory Mathematics REU
Advisor: Ken Ono
Summer 2012 Emory Mathematics REU
Advisor: David Zureick-Brown
September 2015 Math Circle Mentorship and Partnership Program Workshop

SERVICE,
LEADERSHIP,
MENTORING

Sept 2009 - May 2010 Coordinator, Princeton Math Undergraduate Colloquium
Jan 2010 - Jan 2012 President, Princeton Math Club
Sept 2010 - Dec 2011 Co-director, Princeton Math Circle
Sept 2010 - May 2013 Math teacher, Princeton School Plus
Fall 2010, 2011 Logistics Coordinator, PUMaC (high school math competition)
Summer 2010 Counselor, Mathpath
June 2010 RA/TA, Princeton Summer Workshop for Women in Mathematics
Feb 2011 - May 2013 Coordinator, Meet Your Professors Dinner Series
Sept 2012 - May 2013 Coordinator, Mentoring Mobius
Fall 2012 Logistics Advisor, PUMaC
Spring 2013 Teacher and Logistics Advisor, Princeton Splash
Summer 2013 Counselor, PROMYS
Nov 2013 - present Director, Emory Math Circle
Summer 2014 Instructor, Emory Mathematics REU
Summer 2015 Instructor, Emory Mathematics REU

UNIVERSITY
TEACHING

Fall 2014 Math 111: Calculus 1 at Emory University
Spring 2015 Math 112: Calculus 2 at Emory University