

Robert POLLACK

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(updated November 5, 2017)

EMPLOYMENT

2015–present	Boston University , Professor
2009–2015	Boston University , Associate Professor
2004–2009	Boston University , Assistant Professor
2002–2004	University of Chicago , VIGRE Dickson Instructor
2003–2004	University of Chicago , NSF Postdoctoral Fellow
2001–2002	University of Washington , NSF Postdoctoral Fellow

RESEARCH INTERESTS

- ★ Algebraic number theory
- ★ Elliptic curves and modular forms
- ★ p -adic L -functions and Iwasawa theory
- ★ p -adic variation of automorphic forms

EDUCATION

June 2001	Harvard University , Ph.D.
June 1997	Harvard University , M.A.
May 1996	Washington University , B.S.

VISITING POSITIONS

2016–2018	Max Planck Institute for Mathematics (Bonn)
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AWARDS

2016–2017	Simons Fellowship in Mathematics
2010	Gitner Award for Distinguished Teaching (College-wide award)
2006–2007	Sloan Research Fellowship

RESEARCH GRANTS

2013–2017	NSF grant DMS-1303302 p -adic variation in Iwasawa theory
2010–2013	NSF grant DMS-1001768 p -adic local Langlands and Iwasawa theory

2007–2010	NSF grant DMS-0701153 Overconvergent cohomology of higher rank groups
2004–2007	NSF grant DMS-0439264 (joint with Tom Weston) p -adic variation of supersingular Iwasawa invariants
2001–2004	NSF postdoctoral fellowship DMS-0102036 p -adic L -series of modular forms at supersingular primes

OTHER GRANTS

2016–2017	NSF conference grant DMS-1601028 (co-PI) L -functions and Arithmetic
2014–2015	NSF conference grant DMS-1404999 (co-PI) p -adic Variation and Number Theory
2013–2016	NSF grant DMS-1404999 (co-PI) Boston University/Keio University Workshops
2005	NSF conference grant DMS-0509836 Open Questions and Recent Developments in Iwasawa Theory

PAPERS ACCEPTED IN PEER REVIEWED JOURNALS

- ★ Slopes of modular forms and the ghost conjecture
to appear in IMRN
joint with John Bergdall
- ★ A remark on non-integral p -adic slopes for modular forms
Comptes Rendus Mathématique, 355 (2017), no. 3, 260–262.
joint with John Bergdall
- ★ On the freeness of anticyclotomic Selmer groups of modular forms
International Journal of Number Theory, 13 (2017), no. 6, 1443–1455.
joint with Chan-Ho Kim and Tom Weston
- ★ Explicit computations of Hida families via overconvergent modular symbols
Research in Number Theory, 2 (2016), Art. 25, 54 pp.
joint with Evan Dummit, Marton Hablicsek, Robert Harron, Lalit Jain, Daniel Ross
- ★ Arithmetic properties of Fredholm series for p -adic modular forms
Proceedings of the London Mathematical Society, (2016) 113 (4) 419–444
joint with John Bergdall
- ★ Overconvergent modular symbols
Computations with Modular Forms (Heidelberg 2011), *Contributions in
Mathematical and Computational Sciences*, Vol. 6, Springer, 2014, 69–105
- ★ Critical slope p -adic L -functions
Journal of the London Mathematical Society, 87 (2013), no. 2, 428–452
joint with Glenn Stevens
- ★ Hilbert modular forms and the Gross-Stark conjecture
Annals of Mathematics, (2) 174 (2011), no. 1, 439–484
joint with Samit Dasgupta (lead author) and Henri Darmon

- ★ Mazur-Tate elements of non-ordinary modular forms
Duke Mathematical Journal, 156 (2011), no. 3, 349–385
joint with Tom Weston
- ★ On anticyclotomic μ -invariants of modular forms
Compositio Mathematica, 147 (2011), no. 5, 1353–1381
joint with Tom Weston
- ★ Overconvergent modular symbols and p -adic L -functions
Annales Scientifiques de l'École Normale Supérieure, (4) 44 (2011), no. 1, 1–42
joint with Glenn Stevens
- ★ A construction of rigid analytic cohomology classes for congruence subgroups of $SL_3(\mathbb{Z})$
Canadian Journal of Mathematics 61 (2009) no. 3, 674–690
joint with David Pollack
- ★ Two p -adic L -functions and the weak Birch and Swinnerton-Dyer conjecture
L-Functions & Galois Representations, London Math Society LNS 320 (2007), 300–332
joint with Masato Kurihara
- ★ Kida's formula and congruences of modular forms
Documenta Mathematica, 2006, Extra volume (in honor of J. Coates), 615–630
joint with Tom Weston
- ★ Iwasawa theory of elliptic curves at supersingular primes over number fields
Journal für die Reine und Angewandte Mathematik, 598 (2006), 71–103
joint with Adrian Iovita
- ★ Variation of Iwasawa invariants in Hida families
Inventiones Mathematicae, 163 (2006), no. 3, 523–580
joint with Matthew Emerton and Tom Weston
- ★ The efficient calculation of Stark-Heegner points via overconvergent modular symbols
Israel Journal of Mathematics, 153 (2006), 319–354
joint with Henri Darmon
- ★ An algebraic version of a theorem of Kurihara
Journal of Number Theory, 110 (2005) no. 1, 164–177
- ★ The main conjecture for CM elliptic curves at supersingular primes
Annals of Mathematics, (2) 159 (2004), no. 1, 447–464
joint with Karl Rubin
- ★ On the p -adic L -function of a modular form at a supersingular prime
Duke Mathematical Journal, 118 (2003) no. 3, 523–558

PAPERS CURRENTLY UNDER REVIEW

- ★ Slopes of modular forms and the ghost conjecture II
submitted
joint with John Bergdall

PAPERS IN PREPARATION

- ★ On μ -invariants and congruences with Eisenstein series
joint with Joël Bellaïche
- ★ Explicit reciprocity laws and Iwasawa theory for modular forms
joint with Matthew Emerton and Tom Weston

- ★ Iwasawa invariants of small weight non-ordinary forms
joint with Jeffrey Hadley and Tom Weston
- ★ Computing weight one modular forms via Hida theory
joint with Jon Hanke
- ★ Iwasawa invariants of elliptic curves at supersingular primes
joint with Ralph Greenberg and Adrian Iovita

GRADUATE STUDENT ADVISING

Myoungil Kim	PhD (Spring 2011) currently a lecturer at Seoul National University
Chan-Ho Kim	PhD (Spring 2013) currently a postdoc at KIAS
Ian Sprung	PhD (Spring 2013) currently a Veblen Research Instructor at IAS and Princeton (unofficial PhD student; official advisor was J. Silverman at Brown)
Ben Fischer	PhD (Spring 2016) current teaching at the Loomis Chaffee School

CONFERENCES ORGANIZED

June 2016	<i>L</i> -functions and arithmetic, Harvard University (in honor of Karl Rubin's 60 th birthday)
September 2015	Boston-Keio summer workshop, Boston University
June 2014	<i>p</i> -adic variation in number theory, Boston University (in honor of Glenn Stevens' 60 th birthday)
September 2011	Boston-Keio summer workshop, Boston University
June 2005	Open questions and recent developments in Iwasawa theory, Boston University (in honor of Ralph Greenberg's 60 th birthday)
October 2004	Midwest number theory conference, University of Chicago

LECTURE SERIES PRESENTED

August 2011	Overconvergent modular symbols (5 lectures) Computations with Modular Forms, Heidelberg, Germany
March 2011	Overconvergent modular symbols (3 lectures) Arizona Winter School, Tucson
August 2007	Iwasawa theory of elliptic curves (4 lectures) Summer School on Iwasawa Theory, McMaster, Canada

SELECT CONFERENCE TALKS

September 2016	Automorphic Forms: theory and computation, Kings College, London
September 2015	<i>p</i> -adic Hodge theory & Iwasawa theory, Bielefeld University, Germany

May 2013	XVI-ième colloque pan-qubécois des étudiants de l'ISM, McGill
February 2013	Sage Day 44: Overconvergent Modular Forms, University of Wisconsin
September 2012	Rational points on curves, Oxford, England
May 2011	Upstate number theory conference, Cornell
July 2010	Iwasawa 2010, Toronto, Canada
December 2009	Cycles and special values of L -series, CRM, Barcelona, Spain
December 2009	Sage Day 18: Computations related to the BSD conjecture, Harvard
July 2009	PCMI 2009: Arithmetic of L -functions, Park City, Utah
July 2008	Iwasawa 2008, Irsee, Germany
July 2006	p -adic modular forms and applications, Luminy, France
August 2005	Cryptography and related math, Chuo University, Tokyo, Japan
June 2005	Open questions and recent developments in Iwasawa theory, BU
January 2004	Far Hills 2004 workshop, Far Hills, Canada
July 2004	Iwasawa 2004, Besançon, France
November 2003	Birch and Swinnerton-Dyer conference, Princeton
September 2003	Cryptography and related math, Chuo University, Tokyo, Japan
June 2002	XIII Rencontres arithmétiques, Caen, France
May 2002	Canadian Number Theory Association VII, Montreal, Canada

SELECT SEMINAR TALKS

	(Over 50 seminar talks given; sampling listed below)
March 2016	Stanford University
February 2014	University of Chicago
May 2013	McGill University, Montreal, Canada
March 2010	Harvard University
December 2009	Koç University, Istanbul, Turkey
May 2008	University of Washington
June 2006	University of Münster, Germany
December 2006	Steklov Institute, Moscow, Russia
August 2005	Keio University, Tokyo, Japan
February 2004	University of Toronto, Canada
September 2003	University of Tokyo, Japan
February 2002	Stanford University
January 2001	Princeton University

COURSES TAUGHT

Graduate students	Euler Systems	MA 841, Boston University
	Iwasawa theory	MA 844, Boston University
	Algebraic Number Theory	MA 743, Boston University
	Graduate Algebra	MA 741/742, Boston University
Undergraduates	Calculus I, II	MA 123/124, Boston University
	Calculus I, II	Math 1a/1b, Harvard University
	Honors Calculus	MA 129, Boston University
	Linear Algebra	MA 242, Boston University
	Number Theory	MA 341, Boston University
	Introduction to Analysis	MA 511, Boston University
	Real Analysis	203-205, University of Chicago
	Modern Algebra I, II	MA 541/542, Boston University
Topology	MA 564, Boston University	

EDUCATIONAL OUTREACH

Teachers	Focus on Mathematics, Boston University
	-mentored teachers' research projects, Fall 2005, Fall 2007
	Ross Program for Teachers, Ohio State University
	-worked with teachers for 1 week on number theory, Summer 2005
High school students	SESAME for teachers, University of Chicago
	-instructor of weekly course on unique factorization, Spring 2004
	PROMYS, Boston University
	-taught 6 week course on representation theory, Summers 2008, 2013
	-research lab mentor, Summers 2005, 2007
	Summer Institute of Mathematics, University of Washington
-instructor of 3 week course on elliptic curves, Summers 2003, 2005	
-instructor of 3 week course on sums of squares, Summer 2004	
Elementary students	Ross program, Ohio State University
	-instructor of 1 week course on class numbers, Summer 2004
	The Math Circle, Harvard University
-instructor of weekly course on modular arithmetic, Spring 1999	