

JORDAN S. ELLENBERG

Contact Information:

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Employment Assistant Professor, University of Wisconsin (2005-)
Assistant Professor, Princeton University (2001-)
Instructor, Princeton University (1998-2001)
MSRI Postdoctoral Fellow (Fall 1999)

Education **Harvard University**, Cambridge, MA.
Ph.D. in Mathematics, June, 1998. Dissertation under the supervision of Prof. Barry Mazur: *Hilbert modular forms and the Galois representations associated to Hilbert-Blumenthal abelian varieties.*
Harvard University, Cambridge, MA.
A.B. summa cum laude in Mathematics, June, 1993.

Research Interests Arithmetic algebraic geometry, number theory.

Publications “The number of extensions of a number field with fixed degree and bounded discriminant,” (with A. Venkatesh,) to appear, *Ann. of Math.*
“Uniform bounds for rational points on non-rational curves,” (with A. Venkatesh,) to appear, *Int. Math. Res. Not.*
“Selmer groups and Mordell-Weil groups of elliptic curves over towers of function fields,” submitted.
“A sharp diameter bound for unipotent groups of classical type over $\mathbf{Z}/p\mathbf{Z}$ ” (with J.Tymoczko,) in preparation.
“Serre’s conjecture over \mathbf{F}_9 ,” to appear, *Ann. of Math.*
“Counting extensions of function fields with bounded discriminant and specified Galois group,” (with A. Venkatesh,) in *Geometric Methods in Algebra and Number Theory*, F. Bogomolov and Y. Tschinkel, eds. (2005)
“On the error term in Duke’s estimate for the average special value of L -functions,” to appear, *Canad. Math. Bull.*
“Galois representations attached to \mathbf{Q} -curves and the generalized Fermat equation $A^4 + B^2 = C^p$,” *Amer. J. Math* 126(4), 763–787 (2004)
“K3 surfaces over number fields with geometric Picard number one,” in *Arithmetic of Higher Dimensional Algebraic Varieties*, B. Poonen and Y. Tschinkel, eds. (2004)
“ \mathbf{Q} -curves and Galois representations,” in *Modular Curves and Abelian Varieties*, J. Cremona, J.-C. Lario, J. Quer, K. Ribet, eds. (2004)
“On the average number of octahedral modular forms,” *Math. Res. Lett* 10, 269–273 (2003)
“Galois invariants of dessins d’enfants,” in *Arithmetic Fundamental Groups and Noncommutative Algebra*, M. Fried and Y.Ihara, eds. (2002)
“Endomorphism algebras of Jacobians”, *Adv. Math.* 162, 243–271 (2001)
“On the modularity of \mathbf{Q} -curves” (w. C. Skinner), *Duke Math. J.* 109, no. 1, 97–122 (2001)
“Finiteness of torsion subschemes of Hilbert-Blumenthal abelian varieties,” *J. Reine Angew. Math.* 532, 1–32 (2001)

“Congruence ABC implies ABC,” *Indag. Math.*, N.S., 11 (2), 197–200 (2000)

“The combinatorics of rewritability in finite groups,” *Group theory (Granville, OH, 1992)*, 250–261, World Sci. Publishing, River Edge, NJ, 1993 (with G. Sherman, L. Smithline, C. Sugar, E. Wepsic)

Awards and Prizes

NSF-CAREER Grant DMS-0448750, “Rational points on varieties and non-abelian Galois groups”

Held 2005-2010

Alfred P. Sloan Research Fellowship

Awarded 2005

NSF Grant DMS-0401616

Held 2004-2005

NSA Young Investigator Grant

Held 2001-2004

National Science Foundation Postdoctoral Fellowship

Awarded 1998, declined.

National Science Foundation Graduate Fellow (1994–1997)

Department of Mathematics, Harvard University.

Barry M. Goldwater Scholarship (1991–92)

Received national scholarship for undergraduate study of mathematics.

William Lowell Putnam Competition (1989–92)

Placed in top six on national competition in 1990 and 1992, top ten in 1989 and 1991.

U.S.A. Mathematical Olympiad (1989)

Received first place.

International Mathematical Olympiad (1987–89)

One of six members of U.S. team; received gold medal in 1987 and 1989, silver medal in 1988.

Talks Given

Invited lecture, Coates 60th Birthday Conference, Beijing, August 2005

Penn Algebra Seminar, May 2005

New York Number Theory Seminar, April 2005

Duke Algebraic Geometry Seminar, March 2005

Harvard Number Theory Seminar, February 2005

Brown Algebra Seminar, February 2005

DePrima Memorial Undergraduate Mathematics Lecture, Cal Tech, January 2005

UCLA Number Theory Seminar, January 2005

Cal Tech Number Theory Seminar, January 2005

CMS special session on Arithmetic Geometry, December 2004

Quebec-Vermont Number Theory Seminar, December 2004

BIRS workshop: Diophantine approximation and analytic number theory, November 2004

Canadian Number Theory Association VIII, invited speaker, June 2004

University of Bordeaux Algorithmic Number Theory Seminar, June 2004

AMS special session on Elliptic Surfaces and Elliptic Fibrations, April 2004

University of Pennsylvania Galois Seminar, April 2004

Johns Hopkins Number Theory Seminar, April 2004

University of Utah, February 2004

Ohio State University, February 2004

Cornell University, February 2004

Boston University, February 2004

University of Toronto, February 2004

Columbia University Special Seminar, February 2004

Cal Tech Number Theory Seminar, January 2004
University of Southern California Number Theory Seminar, January 2004
University of Texas Number Theory Seminar, January 2004
Rice University Colloquium, January 2004
Pittsburgh Algebra Seminar, January 2004
AMS special session on Arithmetical Algebraic Geometry, January 2004
Miami Winter School, December 2003
Boston University Algebra Seminar, November 2003
Wisconsin Colloquium, November 2003
Pennsylvania Algebra Seminar, November 2003
Stanford Algebraic Geometry Seminar, October 2003
Berkeley Number Theory Seminar, October 2003
Conference on Noncommutative Aspects of Number Theory, August 2003
McGill University, July 2003
Columbia University Number Theory Seminar, May 2003
Brown Number Theory Conference, Apr 2003
Rice University Colloquium, Apr 2003
University of Texas Number Theory Seminar, Apr 2003
Chinese-American Frontiers of Science, Nov 2002
Duke Algebraic Geometry Seminar, Sep 2002
Invited Speaker, Euroconference on Modular Curves and Abelian Varieties, Barcelona, July 2002
CMS Special Session on Arithmetic Algebraic Geometry, June 2002
Ohio State Number Theory Seminar, May 2002
University of Wisconsin Number Theory Seminar, May 2002
University of Tennessee, April 2002
Cornell Undergraduate Colloquium, April 2002
Rutgers Number Theory Seminar, April 2002
Johns Hopkins Number Theory Seminar, April 2002
UBC Number Theory Seminar, March 2002
Berkeley Number Theory Seminar, March 2002
NYU Number Theory Seminar, February 2002
Far Hills Workshop on Hilbert Modular Varieties and Forms, January 2002
Brown University Colloquium, November 2001
CUNY Arithmetic Geometry Seminar, November 2001
University of Michigan Arithmetic Seminar, October 2001
University of Maryland Number Theory Seminar, October 2001
Euresco conference on Arithmetic Aspects of Fundamental Groups, September 2001
NSF-CBMS Conference on Modular Elliptic Curves, invited plenary lecture, August 2001
Université Bordeaux Number Theory Seminar, June 2001
Quebec-Vermont Number Theory Seminar, April 2001
AMS Special Session on Number Theory, March 2001
University of Pennsylvania Galois Theory Seminar, February 2001
Columbia University Number Theory Seminar, February 2001

**Teaching
Experience**

Course development (2001)

Developed a new course in elementary number theory, Math 214 (Numbers, Equations, and Proofs) for undergraduates interested in majoring in mathematics. Average student rating 4.8/5.

Princeton University (1998-)

Taught Math 104 (Calculus) and Math 204 (Advanced Linear Algebra) to Princeton undergraduates. Taught Math 509 (Algebraic Number Theory) to Princeton graduate students. Advised three senior theses.

Freshman Advisor, Princeton University (2000-)

Advised incoming freshmen with strong mathematical interests.

Expository Article

“Arithmetic algebraic geometry,” article for lay readers, to appear in *The Princeton Companion to Mathematics*, T. Gowers, ed.

Expository Article

“The idea of a moduli space,” article for high school students, published in *Imagine*, May/June 1998, reprinted in *Math Horizons*, November 1998.