CURRICULUM VITAE

Amod Agashe

ADDRESS

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POSITIONS HELD

Florida State University
Associate Professor, Aug 2010 - present.
Assistant Professor, Aug 2005 - Aug 2010.

University of Missouri, Columbia
Assistant Professor, Sept 2003 - May 2005.

University of Texas, Austin
Instructor and R. H. Bing fellow (postdoctoral position), Aug 2000-Aug 2003.

VISITING POSITIONS

Tata Institute of Fundamental Research, Bombay, India
Dec 2008, Jan-May 2004, Nov-Dec 2001.

Institut des Hautes Études Scientifiques, France
June-July 2004, June-Oct 2001.

Max-Planck-Institut für Mathematik, Bonn, Germany
June-Aug 2002.

Mathematical Sciences Research Institute, Berkeley
Aug-Dec 2000.

EDUCATION

University of California, Berkeley
Ph.D. in Mathematics, May 2000. Topic: Number theory.
Thesis advisors: L. Merel and K. Ribet.

Stanford University
M.S. in Electrical Engineering, June 1993.

Indian Institute of Technology (I.I.T.), Bombay
B.S. in Electrical Engineering, May 1991.

DISSERTATION

The Birch and Swinnerton-Dyer formula for modular abelian varieties of analytic rank zero. Committee: K. Ribet (Chair), H. Lenstra, D. Forsyth.

AWARDS AND GRANTS

Simons Foundation Collaboration Grants for Mathematicians, 2012-2017.
National Security Agency Young Investigator grant, 2010-2012.
National Science Foundation grant DMS-0603668, 2006-2010.
First year Assistant Professor grant, Florida State Univ., Summer 2006.

R. H. Bing fellowship, 2000-2003, University of Texas, Austin.
Mathematics Department fellowship, Spring 1999, U. C., Berkeley.
Raymond H. Sciobereti fellowship, Spring 1998, U. C., Berkeley.
President of India Gold medal, being the top I.I.T. Bombay graduate, 1991.
I.I.T. entrance exam: ranked 7th in India (out of about 100,000), 1987.
Physics Olympiad: ranked in top 25 in India (out of 14,000), 1987.

RESEARCH INTERESTS

Number theory, especially Arithmetic algebraic geometry: My current work revolves around the Birch and Swinnerton-Dyer conjecture, Stark-Heegner points, and Hilbert's twelfth problem, but I am also interested in other areas of number theory (including applications to cryptography) and mathematics in general.

PAPERS

1) *On invisible elements of the Tate-Shafarevich group*, Comptes Rendus de l'Académie des Sciences Paris Ser. I Math., vol. 328 (1999), no. 5, 369–374.

2) (with W. Stein) Appendix on generating the Hecke algebra, in:
J.-C. Lario, R. Schoof, *Some computations with Hecke rings and deformation rings*, Experimental Mathematics, vol. 11 (2002), no. 2, 303–311.

3) (with W. Stein) *Visibility of Shafarevich-Tate Groups of Abelian Varieties*, Journal of Number Theory, vol. 97 (2002), no. 1, 171–185.

4) (with K. Lauter and R. Venkatesan) *Constructing elliptic curves with known number of points over a prime field*, High primes and misdemeanours: lectures in honour of the 60th birthday of Hugh Cowie Williams, Fields Institute Communications, vol. 41, Amer. Math. Soc., Providence, RI, 2004, pp. 1–17.

5) (with W. Stein) *Visible Evidence for the Birch and Swinnerton-Dyer Conjecture for Modular Abelian Varieties of Analytic Rank Zero* (with an Appendix by J. Cremona and B. Mazur), Mathematics of Computation, Vol. 74 (2005), no. 249, 455–484.

6) (with K. Ribet and W. Stein) *The Manin constant*, Pure and Applied Mathematics Quarterly (Part II of a special issue in honor of John Coates), 2 (2006), no. 2, 617–636

7) *Visibility and the Birch and Swinnerton-Dyer conjecture for analytic rank one*, Int. Math. Res. Not. (IMRN), Vol. 2009 (2009), No. 15, pp. 2899–2913.

8) *A visible factor of the special L-value*, J. Reine Angew. Math. (Crelle's journal), Vol. 644 (2010), 159–187.

9) *Squareness in the special L-value and special L-values of twists*, Int. J. Number Theory, Vol. 6, No. 5 (2010), 1091–1111.

10) *A visible factor of the Heegner index*, Math. Res. Lett. 17 (2010), no. 6, 1065–1077.

11) *Mod-p reducibility, the torsion subgroup, and the Shafarevich-Tate group*, J. Ramanujan Math. Soc., vol 26, No. 4 (2011), 357–367.

12) *Appendix on periods*, in: V. Pal, *Periods of quadratic twists of elliptic curves*, Proc. Amer. Math. Soc., vol. 140 (2012), 1513-1525.

13) (with K. Ribet and W. Stein) *The modular degree, congruence primes, and multiplicity one*, in D. Goldfeld, J. Jorgenson, P. Jones, D. Ramakrishnan,

K. Ribet (editors), *Number Theory, Analysis and Geometry, In Memory of Serge Lang*, Springer, (2012), 19–50.

14) *On the notion of visibility of torsors*, Canad. Math. Bull. 56 (2013), no. 2, 225–228.

15) (with S. Biswas) *Constructing non-trivial elements of the Shafarevich-Tate group of an abelian variety over a number field*, vol. 133 (2013), 1977-1990.

16) (with R. Heaton) *Computing intersection numbers between abelian varieties associated to subspaces of modular forms*, J. Symbolic Comput. 57 (2013), 70–77.

17) *Conjectures concerning the orders of the torsion subgroup, the arithmetic component groups, and the cuspidal subgroup*, Exp. Math. 22 (2013), no. 4, 363-366.

18) *The special L-value of the winding quotient of square-free level*, Manuscripta Math. 151 (2016), no. 3-4, 493-504.

19) (with L. Eldredge) *On the cohomology groups of certain quotients of products of upper half planes and upper half spaces*, Comptes Rendus de l'Académie des Sciences Paris Ser. I Math., vol. 355 (2017), 937-941.

20) *Rational torsion in elliptic curves and the cuspidal subgroup*, 12 pages, to appear in Journal de théorie des nombres de Bordeaux (accepted in 2016).

21) *Visibility and the Birch and Swinnerton-Dyer conjecture for analytic rank zero*, arXiv:0908.3823, accepted in the Journal of the Ramanujan Mathematical Society, pending corrections.

22) *The modular number, congruence number, and multiplicity one*, 12 pages, submitted, arXiv:0810.5176.

23) (with M. Trifkovic) *Darmon points on elliptic curves over totally real fields*, submitted, arXiv:1310.4237.

24) *A generalization of Kronecker's first limit formula to GL(n)*, submitted, arXiv:1501.00453.

Most of the papers above, including the latest publication details, can be found at: `http://www.math.fsu.edu/~agashe/math.html`

TALKS

Tata Institute of Fundamental Research, India, Aug 2017.
Indian Institute of Science Education and Research, Pune, January 2017.
Tata Institute of Fundamental Research, India, Dec 2016.
Colloquium, California State University, Chico, September 2016.
Special session, AMS sectional meeting, Athens, GA, March 2016.
Colloquium, University of Maine, October 2015.
Number theory seminar, Arizona State University, March 2015.
Number theory seminar, SUNY Binghamton, December 2014.
Colloquium at Indian Institute of Technology, Bombay, January 2014.
"Local Langlands conjecture and Galois representations", workshop held at the Tata Institute for Fundamental Research, December 2013.
"Effective methods for Darmon points", workshop held in Benasque, Spain, August 2013.
Georgia Tech, Number theory seminar, April 2013.

University of Victoria, Canada, Oct 2012.
Tata Institute of Fundamental Research, India, Dec 2011.
Univ. of Oklahoma – Oklahoma State Univ. Automorphic Forms Seminar, Norman, Nov 2011.
Colloquium, Tata Institute of Fundamental Research, India, Dec 2010.
Workshop on computer methods for L-functions and automorphic forms, Centre de recherches mathematiques (CRM), Montreal, March 2010.
AMS National Meeting, San Francisco, Special session, Jan 2010.
AMS Sectional Meeting, Boca Raton, Special session, Oct/Nov 2009.
Palmetto number theory series, Plenary speaker, Savannah, Sept 2009.
University of Maryland at College Park, number theory seminar, May 2009.
University of Washington at Seattle, number theory seminar, February 2009.
Tata Institute of Fundamental Research, Bombay, India, Dec 2008.
AMS Sectional Meeting, Baton Rouge, Special session, March 2008.
Colloquium, Indian Institute of Technology, Bombay, India, Dec 2007.
Tata Institute of Fundamental Research, Bombay, India, Dec 2007.
Modular forms: arithmetic and computation, Banff, June 2007.
AMS Sectional Meeting, Fayetteville, Special session, Nov 2006.
AMS Sectional Meeting, San Francisco, Special session, April 2006.
AMS National Meeting, San Antonio, Special session, Jan 2006.
Univeristy of Georgia, Vigre seminar and number theory seminar, Oct 2005.
Séminaire de théorie des nombres de Chevaleret, Paris, June 2004.
Colloquium at Tata Institute of Fundamental Research, India, Mar 2004.
Univ. of Illinois at Urbana-Champaign, number theory seminar, Oct 2003.
Québec-Vermont number theory seminar, Montréal, Dec 5, 2002.
Max-Planck-Institut für Mathematik, Bonn, Germany, July 31, 2002.
Modular Curves and Abelian Varieties, Barcelona, July 15-18, 2002.
l'Université Louis Pasteur, Strasbourg, France, June 19, 2002.
Tata Institute of Fundamental Research, Bombay, India, Nov 2001.
Institut des Hautes Études Scientifiques, France, Oct 2001.
AMS Sectional Meeting, Lawrence, Kansas, Special session, Mar 2001.
AMS National Meeting, New Orleans, Special session, Jan 2001.
Mathematical Sciences Research Institute, Berkeley, Nov 2000.
Millenial conference on number theory, Urbana, May 2000.
Tata Institute of Fundamental Research, Bombay, India, Aug 1999.
IAS/Park City Mathematics Institute, Utah, July 1999.
Université de Paris 6, number theory seminar, Jan 1999.

CONFERENCES ATTENDED

Arizona winter school: Perfectoid Spaces, Univ. of Arizona, Mar 2017.
AMS sectional meeting, Athens, GA, March 2016.
"p-adic Variation in Number Theory", Boston, June 2014.
"Local Langlands conjecture and Galois representations", Tata Institute for Fundamental Research, December 2013.
Effective methods for Darmon points, Benasque, Spain, August 2013.
Athens-Atlanta Number theory seminar, April 2013.
Automorphic Forms, Representations, and Combinatorics, Stanford University, August 2012.
Cycles on modular varieties, Banff, Oct–Nov 2011.
Arizona winter school: Stark-Heegner points, Univ. of Arizona, Mar 2011.

Workshop on computer methods for L-functions and automorphic forms, Centre de recherches mathematiques (CRM), Montreal, March 2010.

AMS National Meeting, San Francisco, Jan 2010.

AMS Sectional Meeting, Boca Raton, Oct/Nov 2009.

Palmetto number theory series, Savannah, Sept 2009.

Sage Days 17, Lopez Island (WA), Sept 2009.

CMI/MSRI workshop: Modular Forms and Arithmetic, Berkeley, June–July 2008.

AMS Sectional Meeting, Baton Rouge, March 2008.

Modular forms: arithmetic and computation, Banff, June 2007.

Arizona winter school: p-adic geometry, Univ. of Arizona, Mar 2007.

AMS Sectional Meeting, Fayetteville, Nov 2006.

AMS Sectional Meeting, San Francisco, April 2006.

AMS National meeting, San Antonio, Jan 2006.

Open Questions and Recent Developments in Iwasawa Theory, Boston, June 2005.

Midwest Number theory conference, Chicago, Oct 2004.

LMS Symposium on L-functions and Galois representations, Durham, England, July 2004.

Congrès Iwasawa 2004, Besançon, France, July 2004.

Workshop on Birch and Swinnerton-Dyer conjecture, Princeton, Nov 2003.

Applications of Arithmetic Degeneration of Moduli, Irvine, May 2003.

The Langlands Program and its applications, Montreal, Jan 2003.

Modular Curves and Abelian Varieties, Barcelona, July 2002.

École d'été sur la conjecture de Birch et Swinnerton-Dyer, Paris, July 2002.

Arizona winter school: Periods, Univ. of Arizona, Mar 2002.

Modular forms and p-adic Hodge theory, Barcelona, July 2001.

Galois modules in arithmetic geometry, Lille, July 2001.

Géométrie algébrique et applications arithmétiques, Orsay, June 2001.

AMS Sectional meeting, Lawrence, Kansas, Mar 2001.

Arizona winter school: Modular forms, Univ. of Arizona, Mar 2001.

AMS National meeting, New Orleans, Jan 2001.

Algorithmic Number Theory, M.S.R.I, Berkeley, Fall 2000.

School on Automorphic forms on $GL(n)$, I.C.T.P. , Italy, Aug 2000.

Mirror symmetry, Boston, June 2000.

Millenial conference on number theory, Univ. of Illinois, Urbana, May 2000.

Arizona winter school: Arithmetic of Function Fields, U. of Arizona, Mar 2000.

AMS National meeting, Washington, D.C., Jan 2000.

NSF sponsored IAS/Park City Mathematics Institute, Utah, July 1999.

Séminaire Bourbaki, Paris, June 1999, 1998.

Arizona winter school: Local-to-Global Principles, U. of Arizona, Mar 1999.

Arithmétique et Formes Automorphes, Paris, Dec 1998.

International Congress of Mathematicians, Berlin, Aug 1998.

Number theory and Topology: in honor of B. Mazur, Harvard U., May 1998.

Arithmetic Geometry: Rational points, Cambridge, U.K., Apr 1998.

Elliptic curves and Modular forms, Washington D.C., Mar 15-17, 1996.

Modular forms and Fermat's Last theorem, Boston, Aug 9-15, 1995.

TEACHING EXPERIENCE **Florida State University**, 2005 – present:

Assistant Professor: Taught Calculus I, Calculus III, Applied Linear Algebra (undergraduate), Ordinary Differential equations, "Advanced topics: Elliptic curves", "Groups, rings and vector spaces", "Advanced topics: Algebraic number theory", "Advanced topics: Algebraic geometry", "Advanced topics: Algebraic geometry II".

University of Missouri at Columbia, 2003–2004:
Assistant Professor: Taught Calculus II, Discrete Mathematics (both twice), and graduate courses titled "Elliptic curves and cryptography" and "Algebraic Number theory".

University of Texas at Austin, 2001–2003:
Instructor: Taught the calculus course "Sequences, series and multivariable calculus" thrice, an upper-division undergraduate course on "Discrete Mathematics" twice, and a graduate course on "Number theory and cryptography".

NSF sponsored IAS/Park City Mathematics Institute, Utah, July 1999:
Teaching assistant: Led problem sessions for the Graduate Summer School courses titled "Elliptic curves" (J. Buhler) and "Open problems" (A. Silverberg).

University of California, Berkeley, Aug 1994–Dec 1999:
Graduate student instructor: Led discussion sections for at least 8 lower-division Mathematics classes, including two head teaching assistantships. Courses include Calculus for social sciences majors, Calculus for science majors, and Honors Linear Algebra.

Summer Institute in Mathematical Sciences, Berkeley, Summer 1997:
Teaching Assistant: Led discussion sessions for the course "Computational Linear algebra" (N. Mackey), part of a summer program for women undergraduate students in mathematics from all over the United States.

STUDENTS
Lydia Eldredge, Ph.D. candidate, planning to graduate in Fall 2018.
Randy Heaton, Ph.D., 2012 (currently at Wesleyan College, Macon, Georgia).
Saikat Biswas, Ph.D., 2011 (currently at Arizona State University).
Suchandan Pal (undergraduate thesis; graduated in 2010, then became a graduate student at the University of Michigan).
Vivek Pal (undergraduate thesis; graduated in 2011, then became a graduate student at Columbia University).

COMPUTING
Programmed in Python, C++, Pascal, and Fortran
Mathematical software used: MATLAB, Maple, PARI, LiDIA, Sage.

LANGUAGES
English, French, Hindi, Marathi.

MEMBERSHIPS AND SERVICE
Reviewer for *Mathematical Reviews*
Member, American Mathematical Society
Refereed several journal articles.