

## **BJORN POONEN**

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### **LONG-TERM ACADEMIC POSITIONS**

**Massachusetts Institute of Technology** (2008– ) Professor.

**University of California at Berkeley** (2004–2008) Professor.  
(2001–2004) Associate professor.  
(1997–2001) Assistant professor.

**Princeton University** (1995–97) Instructor and NSF postdoctoral fellow.

**Mathematical Sciences Research Institute, Berkeley** (1994–95) Postdoctoral fellow.

### **VISITING POSITIONS**

**Harvard University**, Cambridge, Massachusetts (Fall 2007) Visiting scholar.

**Massachusetts Institute of Technology**, Cambridge, Massachusetts (Fall 2007) Visiting professor.

**Isaac Newton Institute**, Cambridge, England (June–July 2005)

**Institut Henri Poincaré**, Paris (Fall 2004)

**Pacific Institute for the Mathematical Sciences**, Vancouver (June–July 2004) Distinguished chair.

**Université Paris-Sud**, Orsay, France (June 2001) Professeur invité.

**Isaac Newton Institute**, Cambridge, England (Spring 1998) Rosenbaum fellow.

### **EDUCATION**

Ph.D., Mathematics, University of California at Berkeley, 1994.

A.B., Mathematics and Physics, Harvard, 1989, summa cum laude.

### **HONORS**

- Fellowships
  - American Academy of Arts and Sciences
  - Guggenheim Fellowship
  - Packard Fellowship
  - Miller Professorship
  - Sloan Research Fellowship

- Rosenbaum Fellowship
- NSF Postdoctoral Fellowship
- Sloan Doctoral Dissertation Fellowship
- Office of Naval Research Graduate Fellowship
- Competitions
  - Putnam Undergraduate Mathematics Competition: winner in 1985, 1986, 1987, and 1988 (one of eight four-time winners in the 70-year history of the competition)
  - International Mathematical Olympiad: silver medalist in 1985 (while on the 6-person U. S. team)
  - U. S. A. Mathematical Olympiad: winner in 1985
  - American High School Mathematics Exam: only participant (out of 380,000) to receive a perfect score in 1985
- Other awards
  - The 2011 Chauvenet Prize
  - Thomas T. Hoopes Prize (for an undergraduate thesis written under J. Tate)
  - Blumberg Creative Science Award
  - The 1988-89 Wister Prize
  - Phi Beta Kappa

## **SELECTED INVITED LECTURES**

- The 2012 Spring Lectures in Geometry, Ann Arbor, Michigan, 2012.
- Minicourse, Arithmetic Aspects of Rational Curves summer school, Grenoble, 2010.
- The Dressler Lecture, Manhattan, Kansas, 2010.
- Lecture series, Explicit Methods in Number Theory workshop, Oberwolfach, 2009.
- The Cantrell Lectures, Athens, Georgia, 2008.
- AMS invited address, Joint Mathematics Meetings, New Orleans, 2007.
- Lecture series, Clay Summer School in Arithmetic Geometry, Göttingen, 2006.
- Plenary lecture, Journées Arithmétiques, Marseille, 2005.
- Plenary lecture, Effective Methods in Algebraic Geometry, Alghero, 2005.
- Association of Symbolic Logic invited address, Joint Mathematics Meetings, Atlanta, 2005.
- Distinguished lecture series, Workshop on Computational Arithmetic Geometry, Vancouver, 2004.
- Lecture series, Explicit Methods in Number Theory trimester, Paris, 2004.
- Lecture series, Arizona Winter School, Tucson, 2003.
- Plenary lecture, Modular Forms and Abelian Varieties, Barcelona, 2002.
- Plenary lecture, Algorithmic Number Theory Symposium V, Sydney, 2002.
- The Beeger Lecture, 38th Netherlands Mathematisch Congres, Eindhoven, 2002.
- Plenary lecture, Millennial Conference on Number Theory, Urbana-Champaign, 2000.

- Plenary lecture, Foundations of Computational Mathematics, Oxford, 1999.
- Lecture series, Arizona Winter School, Tucson, 1998.
- Plenary lecture, Algorithmic Number Theory Symposium II, Bordeaux, 1996.

#### GRADUATE STUDENTS SUPERVISED

- Kirsten Eisenträger, Ph.D. 2003.
- Patrick Corn, Ph.D. 2005.
- Dragos Ghioca, Ph.D. 2005. (co-supervised by Thomas Scanlon)
- Nghi Nguyen, Ph.D. 2005.
- Oscar Villareal, Ph.D. 2005.
- Bonnie Huggins, Ph.D. 2005.
- Greta Panova, M.A. 2006.
- Shahed Sharif, Ph.D. 2006.
- Aaron Greicius, Ph.D. 2007. (co-supervised by Hendrik Lenstra)
- David Zywina, Ph.D. 2008.
- Anthony Várilly-Alvarado, Ph.D. 2009.
- Bianca Viray, Ph.D. 2010.
- David Brown, Ph.D. 2010.
- Kaloyan Slavov, Ph.D. 2011.
- and two current Ph.D. students.

#### EDITORIAL POSITIONS

- **Algebra & Number Theory**, founding managing editor, 2006–present.
- **Involve** (new journal), editor, 2007–present.
- **Journal of the American Mathematical Society**, associate editor, 2000–2003 and 2004–2010.
- **A K Peters Research Notes in Mathematics book series**, editorial board member, 2005–present.
- **International Mathematics Research Notices**, editor, 2006–2008.
- **London Mathematical Society Journal of Computation and Mathematics**, editor, 2007–2011.
- **Journal de Théorie des Nombres de Bordeaux**, editor, 1998–2006.
- **Journal of Number Theory**, editor, 2003–2004.

#### CONFERENCES I HAVE HELPED ORGANIZE

- **Lehmer Conference**, U. C. Berkeley, August 24–26, 2000, co-organizer with J. Brillhart, H. Lenstra, and H. Williams.

- **MSRI semester on algorithmic number theory**, Fall 2000, co-organizer with J. Buhler, C. Dwork, H. Lenstra, A. Odlyzko, and N. Yui.
- **CMI Introductory Workshop in Algorithmic Number Theory**, MSRI, August 14–23, 2000, co-organizer with D. Bailey, J. Buhler, C. Dwork, H. Lenstra, A. Odlyzko, W. Velez, and N. Yui.
- **Arithmetic geometry**, MSRI, December 11–15, 2000, chair of organizing committee consisting of N. Elkies, W. McCallum, J.-F. Mestre, and R. Schoof.
- **Journées Arithmétiques XXII**, July 2–6, 2001, Lille, France, member of scientific committee.
- **Rational and integral points on higher-dimensional varieties**, a workshop at the American Institute of Mathematics, Palo Alto, CA, December 11–20, 2002, co-organizer with Yu. Tschinkel.
- **Arizona Winter School 2003** on “Logic and Number Theory”, a conference at the University of Arizona, Tucson, AZ, March 15–19, 2003, co-organizer with M. Kim and A. Pillay.
- **Geometry and arithmetic over finite fields**, a special session at the AMS meeting in San Francisco, May 3–4, 2003, co-organizer with J. Buhler.
- **Algorithmic Number Theory Symposium VI (ANTS VI)**, June 13–18, 2004, member of program committee.
- **An Introduction to Recent Applications of Model Theory**, a workshop in the “Model Theory and Applications to Algebra and Analysis” program at the Isaac Newton Institute, March 29 to April 8, 2005.
- **MSRI semester on “Rational and integral points on higher-dimensional varieties”**, January 9 to May 19, 2006, member of organizing committee and chair of introductory workshop committee.
- **MSRI Introductory Workshop on Rational and Integral Points on Higher-Dimensional Varieties**, January 17–21, 2006, chair of organizing committee consisting of F. Bogomolov, J.-L. Colliot-Thélène, D. R. Heath-Brown, J. Kollár, A. Silverberg, Yu. Tschinkel.
- **Arizona Winter School 2006** on “Computational and algorithmic aspects of algebra and arithmetic”, a conference at the University of Arizona, Tucson, AZ, March 11–15, 2006, co-organizer with F. Rodriguez-Villegas and D. Ulmer.
- **Arithmetic geometry**, an AMS special session at the Joint Math Meetings in New Orleans, January 8, 2007, co-organizer with M. Baker.
- **Explicit methods for rational points on curves**, a conference at the Banff International Research Station, February 4–9, 2007, co-organizer with N. Bruin.
- **Berkeley Undergraduate Research Conference**, April 7, 2007, co-organizer with a team of Berkeley undergraduates headed by Steven Sam.
- **Modular forms and arithmetic**, U. C. Berkeley and MSRI, June 28–July 2, 2008, co-organizer with Frank Calegari, Samit Dasgupta, and Richard Taylor.
- **New methods in Hilbert’s 10th problem**, Hausdorff Research Institute for Mathematics, February 9–13, 2009, co-organizer with Yuri Matiyasevich and Boris Moroz.

- **Rational points on varieties**, an AMS special session at the Joint Mathematics Meetings in Boston, January 5 and 6, 2012, co-organizer with Jennifer Balakrishnan, Bianca Viray, and Kirsten Wickelgren.
- **BIRS summer school on contemporary methods for solving diophantine equations**, co-organized with Michael Bennett, Nils Bruin, Yann Bugeaud, and Samir Siksek, Banff, June 10–17, 2012.
- **Rational points and algebraic cycles**, a semester-long program at the Centre Interfacultaire Bernoulli in Lausanne, Switzerland, July–December 2012, co-organizer with H el ene Esnault, Andrew Kresch, and Alexei Skorobogatov.
- **Cohomological methods in arithmetic geometry**, a workshop at the Universit at Z urich during the Lausanne program above, co-organized with H el ene Esnault, Andrew Kresch, and Alexei Skorobogatov, September 10–14, 2012.
- **Arithmetic of abelian varieties in families**, a workshop during the Lausanne program above, co-organized with H el ene Esnault, Andrew Kresch, and Alexei Skorobogatov, November 12–16, 2012.
- **Explicit methods in number theory**, an Oberwolfach workshop, co-organized with Karim Belabas and Don B. Zagier, July 14–20, 2013.

#### SERVICE TO MIT

- **Task Force on Improving Graduate Admissions Processes**, 2011.
- **Mathematics Department Graduate Co-chair**, 2009–present.
- **Mathematics Department Executive Committee**, 2009–present.
- **Pure Math Committee** (hiring), 2008–present.
- **Mathematics Department Education Committee**, 2008–2009.
- **Mathematics Department Nominations Committee**, 2008–present.

#### SERVICE TO THE UNIVERSITY OF CALIFORNIA

- **Mathematics Department Vice Chair for Undergraduate Affairs**, 2006–2008.
- **Mathematics Department Calculus and Course Committee**, chair 2006–2007.
- **Mathematics Department Preliminary Examination Committee**, member 1998–2002 and chair 2002–2007.
- **Academic Senate Committee on Computing and Communications**, member 2006–present.
- **Academic Senate Committee on Prizes**, member 2000–2003 and chair 2003–2006.
- **Mathematics Department Bowen Lectures Committee**, co-chair 2002–2004.
- **Mathematics Department Graduate Adviser**, 2000–2003.
- **Mathematics Department Chair Selection Committee**, 1999 and 2002.
- **Mathematics Department Non-Major Undergraduate Adviser**, 1999–2001.
- **various ad hoc committees**, including the **Hellman Family Faculty Fund Panel**.

## OTHER PROFESSIONAL EXPERIENCE

- **Center for Communications Research**, Research on sorting and other mathematical algorithms.
- **Lucent Technologies** (6/96–7/96), Research in probabilistic packing and reservation under E. G. Coffman, Jr.
- **AT&T** (6/96–7/96, 5/94–8/94, 5/92–8/92, and 7/87–9/87) Research in combinatorics and number theory under Andrew M. Odlyzko.
- **University of Minnesota at Duluth** (7/88–9/88) Research on combinatorial problems under Joseph A. Gallian.
- **Mathematical Association of America** (6/88–7/88 and 6/87–7/87) Assistant at the Math Olympiad Program, under Cecil Rousseau.

## OTHER PROFESSIONAL ACTIVITIES

- **AMS Committee to Select the Winner of the E. H. Moore Research Article Prize**, 2012–2018.
- **Girls' Angle Advisory Board**, 2009–.
- **Museum of Mathematics Advisory Council**, 2008–.
- **MAA Committee on the Putnam Prize Competition**, 2008, 2009, 2010.
- **Mathematical Reviews**, reviewer, 2006–2007.
- **Berkeley Math Circle**, 1998–2008.
- **Zentralblatt für Mathematik und ihre Grenzgebiete**, reviewer, 2001–2002.
- **Committee on American Mathematics Competitions**, 1989–2003 (duties included submitting and reviewing problems for the U. S. A. Mathematical Olympiad).
- **Bay Area Mathematical Olympiad committee**, 1998–2001.
- **American Mathematical Monthly Problem Section**, reviewer, 1996–1999.

## PUBLICATIONS

1. Random maximal isotropic subspaces and Selmer groups, with E. Rains, *J. Amer. Math. Soc.* **25** (2012), no. 1, 245–269.
2. Self cup products and the theta characteristic torsor, with E. Rains, *Math. Res. Letters* **18** (2011), no. 06, 1305–1318.
3. Automorphisms mapping a point into a subvariety (with an appendix by Matthias Aschenbrenner), *J. Alg. Geom.* **20** (2011), 785–794.
4. Infinity: cardinal numbers, pp. 61–71 in *Expeditions in mathematics* (eds. T. Shubin, D. Hayes, G. Alexanderson), Math. Assoc. of America, 2011.
5. Curves over every global field violating the local-global principle, in the *Proceedings of the Hausdorff Institute trimester on diophantine equations*; Russian version: *Zapiski Nauchnykh Seminarov POMI* **377** (2010), 141–147; English version: *J. of Mathematical Sciences* **171** (2010), no .6, Springer, 782–785.

6. Multivariable polynomial injections on rational numbers, *Acta Arith.* **145** (2010), no. 2, 123–127.
7. Insufficiency of the Brauer-Manin obstruction applied to étale covers, *Annals of Math.* **171** (2010), no. 3, 2157–2169.
8. The Brauer-Manin obstruction for subvarieties of abelian varieties over function fields, with J. F. Voloch, *Annals of Math.* **171** (2010), no. 1, 511–532.
9. Characterizing integers among rational numbers with a universal-existential formula, *Amer. J. Math.* **131** (2009), no. 3, 675–682.
10. Independence of points on elliptic curves arising from special points on modular and Shimura curves, II: local results, with A. Buium, *Compositio Math.* **145** (2009), no. 3, 566–602.
11. Existence of rational points on smooth projective varieties, *J. Europ. Math. Soc.* **11** (2009), no. 3, 529–543.
12. Independence of points on elliptic curves arising from special points on modular and Shimura curves, I: global results, with A. Buium, *Duke Math. J.* **147** (2009), no. 1, 181–191.
13. The set of nonsquares in a number field is diophantine, *Math Res. Lett.* **16** (2009), no. 1, 165–170.
14. Elliptic curves, pp. 183–207 in *Algorithmic number theory: lattices, number fields, curves and cryptography* (J. P. Buhler and P. Stevenhagen, eds.), Mathematical Sciences Research Institute publication **44**, Cambridge University Press, 2008.
15. Isomorphism types of commutative algebras of finite rank over an algebraically closed field, *Computational Arithmetic Geometry* (edited by K. Lauter and K. Ribet), *Contemporary Math.* **463** (2008), Amer. Math. Soc., 111–120.
16. First-order characterization of function field invariants over large fields, with F. Pop, pp. 255–271 of: *Model Theory with applications to algebra and analysis, Volume 2* (edited by Z. Chatzidakis, H. D. Macpherson, A. Pillay, and A. J. Wilkie), London Mathematical Society Lecture Note Series **350**, Cambridge University Press.
17. The moduli space of commutative algebras of finite rank, *J. Europ. Math. Soc.* **10** (2008), no. 3, 817–836.
18. Smooth hypersurface sections containing a given subscheme over a finite field, *Math. Research Letters* **15** (2008), no. 2, 265–271.
19. Undecidability in number theory<sup>1</sup>, *Notices Amer. Math. Soc.* **55** (2008), no. 3, 344–350.
20. Gonality of modular curves in characteristic  $p$ , *Math. Res. Letters* **14** (2007), no. 4, 691–701.
21. Sieve methods for varieties over finite fields and arithmetic schemes, *J. Théor. Nombres Bordeaux* **19** (2007), 223–231.
22. Uniform first-order definitions in finitely generated fields, *Duke Math. J.* **138** (2007), no. 1, 1–21.
23. Twists of  $X(7)$  and primitive solutions to  $x^2 + y^3 = z^7$ , with E. Schaefer and M. Stoll, *Duke Math. J.* **137** (2007), no. 1, 103–158.
24. Heuristics for the Brauer-Manin obstruction for curves, *Experimental Math.* **15** (2006), no. 4, 415–420.

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<sup>1</sup>Awarded the 2011 Chauvenet Prize.

25. Diophantine definability of infinite discrete non-archimedean sets and Diophantine models over large subrings of number fields, with A. Shlapentokh, *J. Reine Angew. Math.* **288** (2005), 27–47.
26. Finiteness theorems for modular curves of genus at least 2, with M. Baker, E. González-Jiménez, and J. González, *Amer. J. Math.* **127** (2005), 1325–1387.
27. Orbits of automorphism groups of fields, with K. Kedlaya, *J. of Algebra* **293** (2005), no. 1, 167–184.
28. Unramified covers of Galois covers of low genus curves, *Math. Res. Letters* **12** (2005), no. 4, 475–481.
29. Multiples of subvarieties in algebraic groups over finite fields, *Internat. Math. Res. Notices* **2005**, no. 24, 1487–1498.
30. Varieties without extra automorphisms III: hypersurfaces, *Finite Fields and their Applications* **11** (2005), no. 2, 230–268.
31. Bertini theorems over finite fields, *Annals of Math.* **160** (2004), no. 3, 1099–1127.
32. Everywhere ramified towers of global function fields, with I. Duursma and M. Zieve, pp. 148–153 in: *Finite fields and applications* (G. Mullen, A. Poli, and H. Stichtenoth, eds.), 7th international conference, Fq7, Toulouse, France, May 5–9, 2003, *Lecture Notes in Computer Science* **2948**, Springer-Verlag, 2004.
33. The conjugate dimension of algebraic numbers, with N. Berry, A. Dubickas, N. Elkies, and C. Smyth, *Quarterly J. Math.* **55** (2004), no. 3, 237–252.
34. Curves of every genus with many points, II: asymptotically good families, with N. Elkies, E. Howe, A. Kresch, J. Wetherell, and M. Zieve, *Duke Math. J.* **122** (2004), no. 2, 399–422.
35. Sums of values of a rational function, *Acta Arith.* **112.4** (2004), 333–343.
36. Random diophantine equations, with J. F. Voloch, pp. 175–184 in: *Arithmetic of higher-dimensional algebraic varieties*, B. Poonen and Yu. Tschinkel (eds.), Progress in Math. **226** (2004), Birkhäuser.
37. *Arithmetic of higher-dimensional algebraic varieties*, edited with Yu. Tschinkel, Progress in Math. **226** (2004), Birkhäuser.
38. Hilbert’s Tenth Problem and Mazur’s Conjecture for large subrings of  $\mathbb{Q}$ , *J. Amer. Math. Soc.* **16** (2003), no. 4, 981–990. [MR1992832]
39. Squarefree values of multivariable polynomials, *Duke Math. J.* **118** (2003), no. 2, 353–373. [MR1980998]
40. Computing rational points on curves, pp. 149–172 in: *Number Theory for the Millennium III*, M. A. Bennett et al. (eds.), A. K. Peters, Natick, Massachusetts, 2002. [MR1956273]
41. *The William Lowell Putnam Mathematical Competition 1985–2000: Problems, Solutions, and Commentary* (350 pages), with K. Kedlaya and R. Vakil, Math. Assoc. of America, 2002. [MR1933844]
42. Using elliptic curves of rank one towards the undecidability of Hilbert’s Tenth Problem over rings of algebraic integers, pp. 33–42 in: *Algorithmic Number Theory*, C. Fieker and D. Kohel (eds.), 5th International Symposium, ANTS-V, Sydney, Australia, July 2002, Proceedings, *Lecture Notes in Computer Science* **2369**, Springer-Verlag, Berlin, 2002.

43. Computing torsion points on curves, *Experimental Math.* **10** (2001), no. 3, 449–465. [MR1917430] (featured review)
44. The Grothendieck ring of varieties is not a domain, *Math. Res. Letters* **9** (2002), no. 4, 493–498. [MR 2003g:14010]
45. Random polynomials having few or no real zeros, with A. Dembo, Q. Shao and O. Zeitouni, *J. Amer. Math. Soc.* **15** (2002), 857–892. [MR 2003f:60092]
46. Spans of Hecke points on modular curves, *Math. Res. Letters* **8** (2001), no. 5–6, 767–770. [MR 2002k:11092]
47. The Hasse principle for complete intersections in projective space, pp. 307–311 in: *Rational points on algebraic varieties*, E. Peyre and Yu. Tschinkel (eds.), Progress in Math. **199** (2001), Birkhäuser. [MR 2002j:14028]
48. Néron-Tate projection of algebraic points, *Internat. Math. Res. Notices* **2001**, no. 9, 435–440. [MR 2002g:14065]
49. An explicit algebraic family of genus-one curves violating the Hasse principle, Proceedings of the 21st Journées Arithmétiques (Rome, 2001), *J. Théor. Nombres Bordeaux* **13** (2001), no. 1, 263–274. [MR 2002e:14036]
50. Points having the same residue field as their image under a morphism, *J. Algebra* **243** (2001), 224–227. [MR 2002e:14002]
51. Torsion packets on curves, with M. Baker, *Compositio Math.* **127** (2001), no. 1, 109–116. [MR 2002d:14039]
52. Zeros of Fekete polynomials, with B. Conrey, A. Granville, and K. Soundararajan, *Ann. Inst. Fourier (Grenoble)* **50** (2000), no. 3, 865–889. [MR 2001h:11108]
53. Varieties without extra automorphisms II: hyperelliptic curves, *Math. Res. Letters* **7** (2000), no. 1, 77–82. [MR 2001g:14052b]
54. Varieties without extra automorphisms I: curves, *Math. Res. Letters* **7** (2000), no. 1, 67–76. [MR 2001g:14052a]
55. Large torsion subgroups of split Jacobians of curves of genus two or three, with E. Howe and F. Leprévost, *Forum Math.* **12** (2000), 315–364. [MR 2001e:11071]
56. Mordell-Lang plus Bogomolov, *Invent. Math.* **137** (1999), no. 2, 413–425. [MR 2001c:11070]
57. Lattice polygons and the number 12, with F. Rodriguez-Villegas, *Amer. Math. Monthly* **107** (2000), no. 3, 238–250. [MR 2001b:52022]
58. Genus-two curves with 22 torsion points, *C. R. Acad. Sci. Paris, Sér. I Math.* **330** (2000), 573–576. [MR 2001b:11058]
59. The Cassels-Tate pairing on polarized abelian varieties, with M. Stoll, *Annals of Math.* **150** (1999), 1109–1149. [MR 2000m:11048] (featured review)
60. Reservation probabilities, with E. G. Coffman, Jr., and P. Jelenkovic, *Advances in Performance Analysis* **2** (1999), 129–158.
61. Computing call admission capacities in linear networks, with E. G. Coffman, Jr., A. Feldmann, and N. Kahale, *Probab. Eng. Inform. Sc.* **13** (1999), 387–406.
62. Packing random intervals on-line. Average-case analysis of algorithms, with E. G. Coffman, Jr., L. Flatto, and P. Jelenkovic, *Algorithmica* **22** (1998), no. 4, 448–476. [MR 2000h:60012]

63. Algebraic families of nonzero elements of Shafarevich-Tate groups, with J.-L. Colliot-Thélène, *J. Amer. Math. Soc.* **13** (2000), no. 1, 83–99. [MR 2000f:11067]
64. A local-global principle for densities, with M. Stoll, *Topics in Number Theory*, S. D. Ahlgren et al. (eds.), Kluwer, 1999, 241–244. [MR 2000m:11048]
65. The classification of preperiodic points of quadratic polynomials over  $\mathbb{Q}$ : a refined conjecture, *Math. Z.* **228** (1998), no. 1, 11–29. [MR 99j:11076]
66. Some diophantine equations of the form  $x^n + y^n = z^m$ , *Acta Arith.* LXXXVI.3 (1998), 193–205. [MR 99h:11034]
67. Zeros of sparse polynomials over local fields of characteristic  $p$ , *Math. Res. Lett.* **5** (1998), 273–279. [MR 99f:11152]
68. Drinfeld modules with no supersingular primes, *Internat. Math. Res. Notices* **1998**, no. 3, 151–159. [MR 99a:11074]
69. A 2-adic approach to the analysis of cyclic codes, with A. R. Calderbank and W. Li, *IEEE Trans. Inform. Th.* **43** (1997), 1–11. [MR 98m:94049]
70. The number of intersection points made by the diagonals of a regular polygon, with M. Rubinstein, *SIAM J. Discrete Math.* **11** (1998), no. 1, 133–156. [MR 98k:52027]
71. Explicit descent for Jacobians of cyclic covers of the projective line, with E. F. Schaefer, *J. Reine Angew. Math.* **488** (1997), 141–188. [MR 98k:11087] (featured review)
72. Cycles of quadratic polynomials and rational points on a genus-2 curve, with E. V. Flynn and E. F. Schaefer, *Duke Math. J.* **90** (1997), 435–463. [MR 98j:11048]
73. Torsion in rank 1 Drinfeld modules and the uniform boundedness conjecture, *Math. Ann.* **308** (1997), 571–586. [MR 98h:11073]
74. How to spread rumors fast, with C. K. Fan and G. Poonen, *Math. Mag.* **70** (1997), 40–46.
75. Computational aspects of curves of genus at least 2, pp. 283–306 in: Cohen, H. (ed.), *Algorithmic Number Theory*, Second International Symposium, ANTS-II, Talence, France, May 1996, Proceedings, *Lecture Notes in Computer Science* **1122**, Springer-Verlag, Berlin. [MR 98c:11059]
76. On a conjecture of Helleseth regarding pairs of binary  $m$ -sequences, with A. R. Calderbank, G. McGuire, and M. Rubinstein, *IEEE Transactions on Information Theory* **42** (1996), 988–990. [MR 97m:94010]
77. Sous-groupes de torsion d’ordres élevés de jacobiniennes décomposables de courbes de genre 2, with E. Howe and F. Leprévost, *C. R. Acad. Sci. Paris, Sér. I Math.* **323** (1996), 1031–1034. [MR 97k:11097]
78. Rigidity and semi-invariants in Drinfeld modules, *J. Numb. Th.* **55** (1995), 181–196. [MR 97e:11066]
79. Local height functions and the Mordell-Weil theorem for Drinfeld modules, *Compositio Math.* **97** (1995), 349–368. [MR 96k:11075]
80. Fractional power series and pairings on Drinfeld modules, *J. Amer. Math. Soc.* **9** (1996), no. 3, 783–812. [MR 96j:11081]
81. Congruences relating the order of a group to the number of conjugacy classes, *Amer. Math. Monthly* **105** (1995), 440–442.

82. Packing random intervals, with E. G. Coffman, Jr. and P. Winkler, *Prob. Theory Relat. Fields* **102** (1995), 105–121. [MR 96h:60016]
83. Parking arcs on the circle with applications to one-dimensional communication networks, with E. G. Coffman, Jr. and C. Mallows, *Ann. of Applied Prob.* **4** (1994), 1098–1111. [MR 95k:60245]
84. The zeta function of the beta transformation, with L. Flatto and J. Lagarias, *Ergodic Th. & Dynam. Sys.* **14** (1994), 237–266. [MR 95c:58141]
85. Zeros of polynomials with 0,1 coefficients, with A. Odlyzko, *L'Enseign. Math.* **39** (1993), 317–348. [MR 95b:11026]
86. The processor minimization problem with independent waiting time constraints, with E. G. Coffman, Jr., L. Flatto, and P. Wright, *Theoret. Comput. Sci.* **125** (1994), 3–16. [MR 94k:68014]
87. The worst case in Shellsort and related algorithms, *J. Algorithms* **15**, no. 1 (July 1993), 101–124. [MR 94j:68044]
88. Maximally complete fields, *L'Enseign. Math.* **39** (1993), 87–106. [MR 94h:12005]
89. Improved lower bounds for Shellsort, with C. Greg Plaxton and Torsten Suel, *Proc. 33<sup>rd</sup> IEEE Foundations of Computer Science Symp.* (1992), 226–235.
90. Union-closed families, *J. Combin. Theory Ser. A* **59**, no. 1 (Mar. 1992), 253–268. [MR 93a:05005]
91. Periodicity of a combinatorial sequence, *Fibonacci Quart.* **26**, no. 1 (Feb. 1988), 70–76. [MR 89g:05007]

**PREPRINTS** (copies available upon request)

- The  $p$ -adic closure of a subgroup of rational points on a commutative algebraic group, accepted by *Experimental Math.*
- The method of Chabauty and Coleman, with W. McCallum, accepted by *Panoramas et Synthèses*, Société Math. de France.
- Néron-Severi groups under specialization, with D. Maulik, accepted by *Duke Math. J.*
- Convergence of the restricted Nelder–Mead algorithm in two dimensions, with J. Lagarias and M. Wright, accepted by *SIAM J. Optim.*
- Average rank of elliptic curves (after Manjul Bhargava and Arul Shankar), Séminaire Bourbaki, to appear in *Astérisque*.
- Generalized explicit descent and its application to curves of genus 3, with N. Bruin and M. Stoll, preprint.
- Extending self-maps to projective space, preprint.
- Undecidable problems: a sampler, in preparation.
- Computing Néron–Severi groups and cycle class groups, with D. Testa and R. van Luijk, in preparation.
- Rational points on varieties, book in preparation.