Curriculum Vitae
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Thomas J. Tucker

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Education

Harvard University, B.A. in Mathematics, 1991.
University of California at Berkeley, Ph.D. in Mathematics, 1998.

Appointments

University of Georgia, post-doctoral researcher, 1998–2002.
City University of New York Graduate Center, visiting assistant professor, 2002–2004.
University of Rochester, assistant professor, 2004–2008.
University of Rochester, associate professor, 2008–2014.
University of Rochester, professor 2014–present

Papers

(1) X. Song and T. J. Tucker. "Dirichlet's Theorem, Vojta's inequality, and Vojta's conjecture." *Compositio Math.* **116** (1999), 219–238.

(2) X. Song and T. J. Tucker. "Arithmetic discriminants and morphisms of curves." *Trans. Amer. Math. Soc.* **353** (2001) 1921–1936.

(3) D. Lorenzini and T. J. Tucker. "Thue equations and the method of Chabauty-Coleman." *Inventiones Math.* **148** (2002), 47–77.

(4) T. J. Tucker. "Irreducibility, Brill-Noether loci, and Vojta's inequality." *Trans. Amer. Math. Soc.* **354** (2002), 3011–3029.

(5) A. Granville and T. J. Tucker. "It's as easy as *abc*." *Notices Amer. Math. Soc.* **49** (2002), no. 10, 1224–1231.

(6) P. Cutter, A. Granville, and T. J Tucker. "The number of fields generated by the square root of a given polynomial." *Canad. Math. Bull.* **46** (2003), 71–79.

(7) J. Piñeiro, L. Szpiro, and T. J Tucker. "Mahler measure for dynamical systems on $\mathbf{P}^1$ and intersection theory on a singular arithmetic surface." In, F. Bogomolov and Y. Tschinkel, editors, *Geometric methods in algebra and number theory*, Progress in Math 235, pages 219–250, Birkhäuser, 2004.

(8) L. Szpiro and T. J. Tucker. "A Shafarevich-Faltings theorem for rational maps." *Pure Appl. Math. Q.* **4** (2008), 715–728.

(9) L. Szpiro and T. J. Tucker. "One half log discriminant." In, U. Zannier, editor, *Diophantine geometry proceedings* (Pisa, April-July 2005), pages 323–334, Edizioni della Normale, Pisa, Italy, 2007.

(10) R. M. Guralnick, T. J. Tucker, and M. E. Zieve. "Exceptional covers and bijections on rational points." *Int. Math. Res. Not.* (2007) Vol. 2007, article ID rnm004, 19 pages.

(11) D. Ghioca and T. J. Tucker. "Siegel's theorem for Drinfeld modules." *Math. Ann.* **339** (2007), 37–60.

(12) D. Ghioca and T. J. Tucker. "Equidistribution and integral points for Drinfeld modules." *Trans. Amer. Math. Soc.* **360** (2008), 4863–4887.

(13) D. Ghioca and T. J. Tucker. "A dynamical version of the Mordell-Lang conjecture for the additive group." *Compositio Math.* **144** (2008), 304–316.

(14) D. Ghioca, T. J. Tucker, and M. E. Zieve. "Intersections of polynomial orbits, and a dynamical Mordell-Lang conjecture." *Inventiones Math.* **171** (2008), 463–483.

(15) D. Ghioca and T. J. Tucker. "Linearizing maps and orbits of points." *J. Number Theory* **129** (2009), 1392–1403.

(16) X. Faber, B. Hutz, P. Ingram, R. Jones, M. Manes, T. J. Tucker, M. E. Zieve. "Uniform bounds on pre-images under quadratic dynamical systems." *Math. Res. Lett.* **16** (2009), 87–101.

(17) L. Szpiro and T. J. Tucker. "Equidistribution and generalized Mahler measures." In, Goldfeld, D.; Jorgenson, J.; Jones, P.; Ramakrishnan, D.; Ribet, K.A.; Tate, J., editors, *Number Theory, Analysis and Geometry: In Memory of Serge Lang*, pages 609–638, Springer-Verlag, New York, 2012.

(18) R. Benedetto, D. Ghioca, P. Kurlberg, T. J. Tucker, U. Zannier. "A case of the dynamical Mordell-Lang conjecture." *Math. Ann.* **352** (2012), 1-26.

(19) S.-I. Ih and T J. Tucker. "A finiteness property for periodic points of Chebyshev polynomials." *Int. J. Number Theory* **6** (2010), 1011–1025.

(20) J. P. Bell, D. Ghioca, and T. J. Tucker. "The dynamical Mordell-Lang problem for étale maps." *Amer. J. Math.* **132** (2010), 1655–1675.

(21) C. Petsche, L. Szpiro, and T. J. Tucker. "A dynamical pairing between two rational maps." *Trans. Amer. Math. Soc.* **364** (2012), 1687–1710

(22) D. Ghioca, T. J. Tucker, and M. E. Zieve. "Linear relations between polynomial orbits." *Duke Math. J.* **161** (2012), 1379–1410.

(23) D. Ghioca, T. J. Tucker, and M. E. Zieve. "The Mordell-Lang question for endomorphisms of semiabelian varieties." *Journal de Théor. Nombres Bordeaux* **23** (2011), 645–666.

(24) D. Ghioca, S.-W. Zhang, and T. J. Tucker. "Towards a dynamical Manin-Mumford conjecture." *Int. Math. Res. Not.* (2011), no. 22, 5109—5122.

(25) R. L. Benedetto, D. Ghioca, B. Hutz, P. Kurlberg, T. Scanlon, and T. J. Tucker. "Periods of rational maps modulo primes." *Math. Ann.* **355** (2013), 637–660.

(26) D. Ghioca, L.-C. Hsia, and T. J. Tucker. "Preperiodic points for families of polynomials." *Algebra Number Theory* **7** (2013), 701–732.

(27) C. Gratton, K. Nguyen, and T. J. Tucker, "ABC implies primitive prime divisors in arithmetic dynamics." *Bull. Lond. Math. Soc.* **45** (2013), no. 6, 1194—1208.

(28) T. J. Tucker. "Integer points in arithmetic sequences." *Bull. Inst. Math. Acad. Sin. (N.S.)* **9** (2014), no. 4, 633—639.

(29) P. Corvaja, V. Sookdeo, T. J. Tucker, and U. Zannier. "Integral points in two-parameter orbits." *J. Reine Angew. Math.* **706** (2015), 19—33.

(30) J. P. Bell, D. Ghioca, and T. J. Tucker. "Applications of p-Adic Analysis for Bounding Periods of Subvarieties Under Etale Maps." *Int. Math. Res. Not. IMRN* 2015, no. 11, 3576—3597.

(31) H. Krieger, A. Levin, Z. Scherr, T. J. Tucker, Y. Yasufuku, M. Zieve. "Uniform boundedness of S-Units in arithmetic dynamics." *Pacific J. Math.* **274** (2015), no. 1, 97—106.

(32) D. Ghioca, L.-C. Hsia, and T. J. Tucker. "Preperiodic points for families of rational maps." *Proc. Lond. Math. Soc. (3)* **110** (2015), no. 2, 395—427.

(33) J. P. Bell, D. Ghioca, and T. J. Tucker. "The Dynamical Mordell-Lang problem for Noetherian spaces." *Funct. Approx. Comment. Math.* **53** (2015), no. 2, 313—328.

(34) D. Ghioca, K. Ngueyn, and T. J. Tucker. "Portraits of preperiodic points for rational maps." *Math. Proc. Cambridge Philos. Soc.* **159** (2015), no. 1, 165–186.

(35) J. Juul, P. Kurlberg, K. Madhu, and T. J. Tucker. "Wreath products and proportions of periodic points." *Int. Math. Res. Not. IMRN* **2016**, no.

13, 3944—3969.

(36) D. Ghioca, L.-C. Hsia, and T. J. Tucker. "Unlikely intersection for two-parameter families of polynomials." *Int. Math. Res. Not. IMRN* **2016**, no. 24, 7589–7618.

(37) J. P. Bell, D. Ghioca, and T. J. Tucker. "The dynamical Mordell-Lang conjecture." *Mathematical Surveys and Monographs*, **210**. American Mathematical Society, Providence, RI, 2016. xiii+280

(38) D. Ghioca, L.-C. Hsia, and T. J. Tucker. "On a variant of the Ailon-Rudnick theorem in positive characteristic ." *New York J. Math.* **23** (2017), 213—225.

(39) L.-C. Hsia and T. J. Tucker. "Greatest common divisors of iterates of polynomials." *Algebra Number Theory* **11** (2017), no. 6, 1437—1459.

(40) A. Bridy Tucker and T. J. Tucker. "ABC implies a Zsigmondy principle for ramification." *J. Number Theory* **182** (2018), 296—310.

(41) D. Ghioca, L.-C. Hsia, and T. J. Tucker. "Squarefree doubly primitive divisors in dynamical sequences." *Math. Proc. Cambridge Philos. Soc.* **164** (2018), no. 3, 551—572.

(42) D. Ghioca, L.-C. Hsia, and T. J. Tucker. "A variant of a theorem by Ailon-Rudnick for elliptic curves." *Pacific Journal of Math.*. **295** (2018), no. 1, 1—15.

(43) A. Bridy and T. J. Tucker. "Finite index theorems for iterated Galois groups of cubic polynomials." *Math Ann.* **373** (2019), no. 1–2, 37—72.

(44) R. Benedetto, P. Ingram, R. Jones, M. Manes, J. H. Silverman, and T. J. Tucker. "Current trends and open problems in arithmetic dynamics." *Bull. Amer. Math. Soc. (N.S.)* **56** (2019), no. 4, 611—685.

(45) J. P. Bell, D. Ghioca, and T. J. Tucker. "Bounding periods of subvarieties of $(P^1)^n$." *Math. Res. Lett.* **26** (2019), no. 4, 949—971.

(46) L. DeMarco D. Ghioca, H. Krieger, K. D. Nguyen, T. J. Tucker, and H. Ye. "Bounded height in families of dynamical systems." *Int. Math. Res. Not. IMRN* **2019**, no. 8, 2453—2482.

(47) D. Ghioca, T. J. Tucker "A reformulation of the Dynamical Manin-Mumford Conjecture". *Bull. Aust. Math. Soc.* **103** (2021), no. 1, 154–161.

(48) A. Bridy, J. R. Doyle, D. Ghioca, L.-C. Hsia, T. J. Tucker. "Finite index theorems for iterated Galois groups of unicritical polynomials." *Trans. Amer. Math. Soc.*

374 (2021), no. 1, 733–752.

(49) A. Bridy, J. R. Doyle, D. Ghioca, L.-C. Hsia, T. J. Tucker. "A question for iterated Galois groups in arithmetic dynamics." *Canadian Mathematical Bulletin* , Canadian Mathematical Bulletin, **64** (2021), 401–417.

(50) J. P. Bell, K. Huang, J. Peng, T. J. Tucker. "A Tits alternative for endomorphisms of the projective line". To appear in *J. Eur. Math. Soc. (JEMS)*.

(51) A. Carney, W. Hindes, T. J. Tucker. "Integral points in orbits in characteristic p." *Algebra Number Theory.* **17** (2023), no.9, 1573–1594.

(52) R. L. Benedetto, D. Ghioca, J. Juul, T. J. Tucker. "Specializations of Iterated Galois Groups of PCF Rational Functions." Submitted to *Math. Ann.*

(53) A. Demirhan, J. Miller, Y. Qiu, T. J. Tucker, and Z. Zheng. "Transitive and non-transitive subgroups of permutation groups." Submitted to *Involve*.

Grants

National Science Foundation grant DMS-0101636, "Diophantine equations and algebraic points on curves," 08/01/01–07/31/04.

National Security Agency grant 06G-067, "Algebraic dynamics on the projective line", 12/01/2006–11/30/2008.

National Science Foundation grant NSF DMS-0801072, "Algebraic dynamics", 07/01/08—06/30/11.

National Science Foundation grant NSF DMS-0854839, "FRG: Collaborative Research: Algebraic Dynamics", 09/01/09—08/31/12.

Provost's Multidisciplinary Award, University of Rochester, "Error-Correcting Codes For On-Chip Electronic Networks" 09/01/10 – 08/31/11.

National Science Foundation grant NSF DMS-1100071, "Collaborative Research: Upstate New York Number Theory Conference", 03/01/11–05/04/14.

National Science Foundation grant NSF DMS-1200749, "Directions in algebraic dynamics", 08/01/12–07/31/15.

National Science Foundation grant NSF DMS-1501515, "Potential density, uniform boundedness, and points in special position", 08/01/15–07/31/18.

Invited Talks

Workshop on Arakelov theory and values of L-Functions, Isaac Newton Institute, Cambridge, England, Summer 1998.

Special session on the interface between diophantine geometry, algebraic geometry, and Nevanlinna theory, American Mathematical Society Meetings, Austin, Texas, Fall 1999.

Workshop on arithmetic geometry, Mathematical Sciences Research Institute, Berkeley, Fall 2000.

Special session on results from the Arizona Winter School, American Mathematical Society Meetings, New Orleans, Spring 2001.

Arithmetic geometry seminar, City University of New York Graduate Center, Spring 2001.

Number theory seminar, University of South Carolina, Spring 2002.

Number theory seminar, University of Illinois at Urbana, Spring 2002.

Number theory seminar, University of Missouri at Columbia, Spring 2002.

Arithmetic geometry seminar, City University of New York Graduate Center, Spring 2002.

Special session on number theory, American Mathematical Society Meetings, Boston, Fall 2002.

Brown VIGRE number theory conference, Providence, Spring 2003.

Number Theory Seminar, University of Montreal, Spring 2003.

Columbia-NYU-CUNY joint number theory seminar, New York, Fall 2003.

Arithmetic geometry seminar, University of Georgia, Spring 2004.

Special session on dynamics of integer sequences and rational maps, American Mathematical Society Meetings, Atlanta, Spring 2005.

Algebraic geometry seminar, Georgia Tech, Spring 2005.

Arithmetic geometry seminar, University of Georgia, Spring 2005.

Program on diophantine geometry, Centro di Ricerca Matematica, Pisa, Italy, Summer 2005.

Columbia-NYU-CUNY joint number theory seminar, New York, Fall 2005.

Number theory seminar, McMaster University, Spring 2006.

Model theory and geometry seminar, Fields Institute, Fall 2006.

Five Colleges number theory seminar, University of Massachusetts, Amherst, Fall 2006.

Special sessions on arithmetic geometry and modular forms, American Mathematical Society Meetings, Hoboken, NJ, Spring 2007.

Number theory seminar, KTH, Stockholm, Summer 2007.

Number theory seminar, City College, New York, Fall 2007.

Palmetto number theory conference (plenary talk), Columbia, South Carolina, Fall 2007.

American Institute of Mathematics workshop on the uniform boundedness conjecture, Spring 2008.

Special session on algebraic dynamics, American Mathematical Society Meetings, San Diego, Spring 2008.

Number theory seminar, Institute for Advanced Study/Princeton University, Fall 2008.

Columbia-NYU-CUNY joint number theory seminar, New York, Fall 2008.

Science colloquium, Colgate University, Hamilton, New York, Spring 2009.

Mathematics colloquium, University of Waterloo, Waterloo, Ontario, Spring 2009.

Special session on the interface between number theory and dynamical systems, Central Sectional Meeting of the American Mathematical Society, Urbana, Illinois, Spring 2009.

Algebra seminar, Georgia Institute of Technology, Spring 2009.

Number theory seminar, Scuola Normale Superiore, Pisa, Italy, Summer 2009.

Dynamics seminar, KTH, Stockholm, Sweden, Summer 2009.

Quebec-Vermont number theory seminar, Montreal, Fall 2009.

Number theory seminar and *Mathematics colloquium*, Dartmouth University, New Hampshire, Fall 2009.

Special session on arithmetic dynamics, American Mathematical Society Meetings, San Francisco, Spring 2010.

Workshop on non-archimedean analysis, Lie groups, and dynamical systems, University of Paderborn, Germany, Spring 2010.

Number theory seminar, State University of New York at Binghamton, Spring 2010.

Colloquium, State University of New York at Binghamton, Spring 2010.

Columbia-NYU-CUNY joint number theory seminar, New York, Spring 2010.

Jeudynamique conference, Bordeaux, Summer 2010.

Special Session on Applications of Non-Archimedean Geometry, Richmond, Virginia, Fall 2010.

Special session on number theory, arithmetic topology, and arithmetic dynamics , American Mathematical Society Meetings, College of the Holy Cross, Massachusetts, Spring 2011.

Collaborative number theory seminar, City University of New York Graduate Center, New York, Spring 2011.

Workshop on arithmetic dynamics, Athens, Georgia, Summer 2011.

Maine-Québec number theory conference, University of Maine, Fall 2011.

Special session on dynamical systems in algebraic and arithmetic geometry, American Mathematical Society Meetings, Boston, Spring 2012.

Mathematics colloquium, Wesleyan University, Connecticut, Spring 2012.

Workshop on Moduli Spaces Associated to Dynamical Systems, ICERM, Providence, April 2012.

Conference on the occasion of the 70th birthday Of Lucien Szpiro, New York, Summer 2012.

MSRI summer school on model theory, Berkeley, California, Summer 2012.

Conference on Diophantine Analysis and Related Fields, Nihon University, Tokyo, Japan, January 2013.

Number theory seminar, Kyoto University, Japan, January 2013

University of Waterloo algebra seminar, Waterloo, Canada, Summer 2013.

Conference on arithmetic dynamics and diophantine problems, Institute of Mathematics, Academia Sinica, Taipei, Taiwan, Summer 2013.

Boston College-MIT Joint number theory seminar, Boston, Fall 2013.

Mathematics colloquium, Oregon State University, Corvallis, Spring 2014.

American Institute of Mathematics, workshop on postcritically finite maps in complex and arithmetic dynamics, Palo Alto, Spring 2014.

Berkeley-MSRI number theory seminar, Spring 2014.

Second ERC Research Period on Diophantine Geometry, Cetraro Italy, Summer 2014.

Collaborative number theory seminar, City University of New York Graduate Center, New York, Fall, 2014.

Mathematics colloquium, State University of New York at Geneseo, Spring 2015.

Final ERC meeting in Diophantine Geometry, Rome, Italy, Summer 2015.

Collaborative number theory seminar, City University of New York Graduate Center, New York, Fall 2015.

Number theory seminar, Princeton University, Fall 2015.

RTG workshop in arithmetic dynamics, University of Michigan, Fall 2015.

Special session on arithmetic dynamics, American Mathematical Society Meetings, Boston, January 2016.

American Institute of Mathematics workshop on the Galois theory of orbits in arithmetic dynamic, San Jose, Summer 2016.

American Institute of Mathematics SQuaRE on Dynamical Andre-Oort questions, San Jose, Summer 2016.

Workshop on Interactions between Model Theory and Arithmetic Dynamics, Field Institute, Toronto, Summer 2016.

Workshop on arithmetic dynamics, Basel, Summer 2016.

Collaborative number theory seminar, City University of New York Graduate Center, New York, Fall 2016.

Workshop on arithmetic dynamics, University of Michigan, Spring 2017.

Conference on families of algebraic dynamical systems, University of Rennes, Spring 2017.

Workshop on diophantine approximation, Banff, Summer 2017.

Columbia-NYU-CUNY joint number theory seminar, New York, Fall 2017.

AMS Special session on arithmetic dynamics, Boston, Spring 2018.

Workshop on arithmetic dynamics, Northwestern University Spring 2018.

Simons Symposium on Algebraic, Complex and Arithmetic Dynamics, Schloss Elmau, Germany, Spring 2019.

Number theory seminar, Oklahoma State University, Spring 2020.

Arithmetic Dynamics International Online Seminar (ADIOS), online, Summer 2020.

Workshop on arithmetic and algebraic dynamics, American Mathematical Society Meetings, online, Spring 2021

Number theory seminar, National Taiwan University, Fall 2021.

Workshop on arithmetic and algebraic dynamics, Harvard, Spring 2022

Equidistribution and Arithmetic Dynamics, Oklahoma State University, Stillwater, OK, Summer 2022.

Five colleges number theory seminar, Amherst, Fall 2023.

Introductory workshop on diophantine geometry, MSRI, Berkeley, January 2023.

Santa Clara College math colloquium, Santa Clara, Spring 2023.

Doctoral dissertations supervised

Vijay Sookdeo (PhD 2009) (Catholic University)
Justin Sukiennik (PhD 2009) (University of Puget Sound)
Joel Dreibelbis (PhD 2010) (Rochester Institute of Technology)
Kalyani Madhu (PhD 2011) (University of Rochester)
Adam Towsley (PhD 2012) (Elmira College)
Chad Gratton (PhD 2013)
Jamie Juul (PhD 2015) (Amherst College)

George Grell (PhD 2019)
Keping Huang (PhD 2020)
Wayne Peng (PhD 2020)

Graduate students currently under my supervision

Jianfei Hei
Zheng Zhu