T. Alden Gassert — Curriculum Vitae

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Employment:

Hobart and William Smith Colleges, Department of Mathematics and Computer Science, Visiting Assistant Professor, July 2017 – .

Western New England University, Department of Mathematics, Visiting Assistant Professor, August 2016 – June 2017.

University of Colorado, Boulder, Department of Mathematics, Burnett Meyer Postdoc, August 2014 – May 2016.

Education:

University of Massachusetts, Amherst, Ph.D. in Mathematics, May 2014, *Prime decomposition in iterated extensions and discriminant formulae*, under Farshid Hajir.

Bowdoin College, B.A. in Mathematics, Minor in Physics, May 2008.

Research interests:

Arithmetic Dynamics, Number Theory, Algebra.

Publications:

1. Discriminants of iterated quadratic extensions (in preparation).
2. with M. Urbanski, Index divisibility in the orbit of 0 for integral polynomials (to appear in *Integers*). arXiv:1709.08751
3. with H. Smith and K. Stange, A family of monogenic S_4 quartic fields arising from elliptic curves. *J. Number Theory*, 197:361–382, 2019. 10.1016/j.jnt.2018.09.026
4. with C. Shor, Characterization of numerical semigroup complements via Apéry sets. *Semigroup Forum*, 2018. doi: 10.1007/s00233-018-9935-4
5. with A. Chen and K. Stange, Index divisibility in dynamical sequences and cyclic orbits modulo p. *New York J. Math.*, 23:1045–1063, 2017. [link]
6. with C. Shor, On Sylvester sums of compound sequence semigroup complements. *J. Number Theory*, 180:45–72, 2017. doi: 10.1016/j.jnt.2017.03.025 [link]
7. A note on the monogeneity of power maps. *Albanian J. Math*, 11(1):3–12, 2017. [link]
8. Discriminants of simplest 3^n-tic extensions. *Funct. Approx. Comment. Math.*, 53(2):193–214, 2015. doi: 10.7169/facm/2015.53.2.3
9. Discriminants of Chebyshev radical extensions. *J. Théor. Nombres Bordeaux*, 26(3):607–633, 2014. doi: 10.5802/jtnb.882 [link]
10. Chebyshev action on finite fields. *Disc. Math.*, 315:83–94, 2014. doi: 10.1016/j.disc.2013.10.014 [link]
11. with A. Yeager, Characterization of the vertex-reinforced random walk and trapping subgraphs. *The Pentagon: A Mathematics Magazine for Students*, 68(1):21–28, 2008. [link]

Non-mathematical publications:

1. with C. Talmage, Unsettling Entrepreneurship by Teaching Dark Side Theories (submitted, 2019).

Teaching:

- Undergraduate: PreCalculus, Calculus (differential, integral, multivariate), Discrete Mathematics, Differential Equations, Introduction to Real Analysis, Linear Algebra, Engineering Analysis.
- Master of Arts in Mathematics for Teachers: Real Analysis, "What is Math?".
- Graduate: Number Theory, Class field theory (one semester seminar).
- Online: Business calculus (differential, integral).
- Teaching assistantships: Graph Theory, REU in Graph Theory at UMass, Calculus TA at Bowdoin.

Advising:

- Levi Lorenzo (currently pursuing a PhD in Mathematics at University of Colorado Boulder), 2018 REU at Hobart and William Smith Colleges. *Divisibility in dynamical sequences.*
- Annie Schenck (currently pursuing a PhD in Mathematics at University of Minnesota Twin Cities), 2018 REU at Hobart and William Smith Colleges. *Divisibility in dynamical sequences.*
- Michael Urbanski (currently pursuing a PhD in Mathematics at UConn), 2017 summer research project at Western New England University. *Divisibility in dynamical sequences.*
- Annie Chen (currently an undergraduate at Stanford), co-mentored with Kate Stange during the 2015–2016 academic year. *Divisibility in dynamical sequences.*

Grants and Awards:

- Katherine D. Elliott '66 Faculty Innovation Grant, 2018: assessment of first year student math placement and the pre/calculus curriculum.
- Project NExT Fellow, 2014–2015.
- UMass Department of Mathematics and Statistics distinguished thesis award, 2014.

Activities and service:

- Hobart and William Smith Coding Club, 2019–.
- Hobart and William Smith Ultimate Frisbee Club, 2017–.
- PBL student presentation panel judge, Northglenn High School, Northglenn, CO, May 2015.
- JMM panel on grant writing for early career faculty, co-organizer, January 2015.
- CU Boulder Faculty-Student Mentor Program, 2014–2015.
- CU Boulder Number Theory seminar, co-organizer, 2014–2016.

Programming:

- Code, written in `PARI`, which computes an explicit basis for the group of elliptic units in abelian unramified extensions of imaginary quadratic fields.
- Proficient in Python and C++.

Technical writing/editing:

- for K. Bonetti, *Why state and local leaders should care about the TPP*, 16 pages, 2016.
- for F. Williams, Some selected thoughts old and new on soliton-black hole connections in 2d dilaton gravity, *The sine-Gordon Model and its Applications: From Pendula and Josephson Junctions to Gravity and High-Energy Physics*, co-edited with Jesus Cuevas-Maraver and Panayotis Kevrekidis, 263 pages, Springer Pub. 177–205, 2014.

- for F. Williams, Zakharov-Shabat systems and conformal immersions induced by Dirac spinors, *Proceeding of Science*, electronic journal : POS (ICMP 2013) 015, 2013.

Recent Talks:

Research Seminars

- JMM–AMS Special Session on Arithmetic Dynamics, San Diego, CA. *On Sylvester sums of compound sequence semigroup complements.* January 2018.
- Hobart and William Smith Faculty Research Colloquium. *Lessons of Parrondo.* February, 2018.
- Cornell Number Theory Seminar. *Discrminants of iterated extensions.* November 2017.
- JMM—AMS Special Session on Discrete Structures in Number Theory, Atlanta, GA. *Index divisibility in dynamical sequences and cyclic orbits modulo p.* January 2017.
- Union College Mathematics Conference. *Index divisibility in dynamical sequences and cyclic orbits modulo p.* December, 2016.
- MAA Northeast Section, Trinity College. *Divisibility Sequences in Dynamics.* November 2016.
- Five College Number Theory Seminar, Amherst College. *Index divisibility in dynamical sequences and cyclic orbits modulo p.* October, 2016.
- JMM—AMS Special Session on Arithmetic Dynamics, Seattle, WA. *Discriminants of iterated quadratic extensions.* January 2016.
- Arithmetic 2015: Silvermania, poster session. *Discriminants of iterated quadratic extensions.* August 2015.
- AMS Western Section Meeting, UNLV. *On discriminants of iterated quadratic extensions.* April 2015.
- JMM, San Antonio, TX. *Discriminants of simplest 3^n-tic extensions.* January 2015.
- AMS Eastern Section Meeting, UNCG. *Discriminants of simplest 3^n-tic extensions.* November 2014.
- CU Boulder Number Theory Seminar. *Arithmetic properties of iterated towers.* September 2014.
- UMass, seminar. *Prime decomposition in iterated towers and discriminant formulae.* April 2014.
- JMM 2014, Baltimore, *Chebyshev action on finite fields.* January 2014.
- MAA Northeastern Section Meeting, Wheaton College. *Finite field dynamics of Chebyshev polynomials.* November 2013.
- Bowdoin College Math Seminar. *Chebyshev radical extensions.* October 2013.
- MAA Mathfest, poster session. *Chebyshev radical extensions.* July 2013.
- Journées Arithmétiques, Université Joseph Fourier. *Discriminants of Chebyshev radical extensions.* July 2013.
- Five College Number Theory Seminar, Amherst College. *Discriminants of Chebyshev radical extensions.* April 2013.
- Spring Eastern Sectional Meeting, Boston College. *Discriminants of Chebyshev radical extensions.* April 2013.
- Five College Number Theory Seminar, Amherst College. *Chebyshev action on finite fields.* February 2013.

Student Seminars

- Union College Student Seminar. *Opening Parrondo's Paradox*. April, 2017.
- Western New England Colloquium. *Opening Parrondo's Paradox*. April, 2017.
- Hobart and William Smith Colloquium. *Opening Parrondo's Paradox*. April, 2017.
- Western New England Colloquium. *Dynamics and divisibility sequences*. December, 2016.
- UMass, Undergraduate Math Club. *Parrondo's paradox*. October, 2013.
- Western New England University, Undergraduate math seminar. *Introduction to finite field dynamics*. April 2013.
- UMass, GRASS. *Discriminants of Chebyshev radical extensions*. April 2013.
- Western New England University. *An introduction to finite field dynamics*. April 2013.
- UMass, GRASS. *Chebyshev action on finite fields*. March 2013.
- UMass, Undergraduate Math Club. *Pascal's triangle*. November 2012.
- UMass, GRASS. *Chebyshev action on finite fields*. January 2012.
- UMass, Undergraduate Math Club. *Parrondo's paradox*. November 2011.
- UMass, Graduate Student Algebraic Geometry Seminar. *ADE Singulatities*. November 2010.
- UMass, Graduate Student Number Theory Seminar. *Primes of the form* x^2+ny^2. December 2009 and February 2010.
- UMass, Undergraduate Math Club. *Vertex-Reinforced Random Walks*. April 2009.
- San Diego, Joint Math Meetings. *Characterization of the Vertex-Reinforced Random Walk and Trapping Subgraphs*. January 2008.
- The Ohio State University, Young Mathematicians Conference. *Characterization of the Vertex-Reinforced Random Walk and Trapping Subgraphs*. August 2007.

Teaching Seminars

- JMM—MAA Session on Proofs and Mathematical Reasoning in the First Two Years of College, Atlanta, GA. *Tackling Intro to Proofs at CU Boulder*. January 2017.
- UMass Math & Stat Graduate Teaching Seminar. *Writing and grading an exam*. April 2013.

Research programs and conferences attended:

- MathFest, Denver, CO, August 2018.
- HRUMC, St Lawrence University, Canton, NY, April 2018.
- JMM, San Diego, CA, January 2018.
- HRUMC, Westfield State University, Westfield, MA, April 2017.
- JMM, Atlanta, GA, January 2017.
- Union College Mathematics Conference, Schenectady, NY, December 2016.
- MAA Northeast Section, Trinity College, November 2016.
- JMM, Seattle, WA, January 2016.
- RTG Workshop in Arithmetic Dynamics, University of Michigan, December 2015.
- Arithmetic 2015: Silvermania, Brown University, Providence, RI, August 2015.
- MAA MathFest, Washington DC, August 2015.
- p-adic methods 2015, UC Berkeley, Berkeley, CA, May 2015.
- AMS Western Section Meeting, UNLV, Las Vegas, NV, April 2015.
- JMM, San Antonio, TX, January 2015.

- AMS Eastern Section Meeting, UNCG, Greensboro, NC, November 2014.
- MAA MathFest, Portland, OR, August 2014.
- Glennfest, Boston University, Boston, MA, June 2014.
- Summer School in Computational Number Theory, UNCG, Greensboro, NC, May 2014.
- Arizona Winter School, University of Arizona, Tucson, AZ, March 2014.
- JMM, Baltimore, MD, January 2014.
- MAA Northeastern Section Meeting, Wheaton College, Norton, MA, November 2013.
- MAA Mathfest, Hartford, CT, July 2013.
- 28th Journées Arithmétiques, Institut Fourier, Grenoble, France, July 2013.
- Summer School in Number Theory and Dynamics, Institut Fourier, Grenoble, France, June 2013.
- Summer School in Computational Number Theory, UNCG, Greensboro, NC, May 2013.
- p-adic Modular Forms, L-functions, and Galois representations, UCLA, Los Angeles, CA, May 2013.
- Third Annual Upstate New York Number Theory Conference, Binghamton University, Vestal, NY, April 2013.
- Spring Eastern Sectional Meeting, Boston College, Chestnut Hill, MA, April 2013.
- AGNES, UMass, Amherst, MA, March, 2012.
- JMM, Boston, MA, January, 2012.
- Maine/Québec Number Theory Conference, University of Maine, Orono, ME, October 2011.
- AGNES, MIT, Cambridge, MA, April 2011.
- AGNES, UMass, Amherst, MA, April 2010.
- Undergraduate program, Park City Math Institute, Park City, Utah, July 2008.
- Summer REU, Pennsylvania State University, State College, PA, July 2007–August 2007.