BENJAMIN A. HUTZ

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Positions Held

Associate Professor	**St. Louis University** Department of Mathematics and Statistics, St. Louis, MO, 2019-present. **Graduate Program Coordinator:** 2022-present.
Assistant Professor	**St. Louis University** Department of Mathematics and Statistics, St. Louis, MO, 2015-2019
Assistant Professor	**Florida Institute of Technology** Department of Mathematical Sciences, Melbourne, FL, 2012-2015
Visiting Assistant Professor/RTG Postdoc	**City University of New York Graduate Center** Department of Mathematics, New York, NY, 2010-2012
Visiting Assistant Professor	**Amherst College** Department of Mathematics and Computer Science, Amherst, MA, 2007-2010
Program Manager	**Microsoft Corporation**, Windows Security Group, Redmond, WA, 2000-2002

Education

Brown University	PhD Mathematics 2007, MS Mathematics 2004 Thesis: *Arithmetic Dynamics on Varieties of Dimension Greater Than One* Advisor: Joseph H. Silverman
Duke University	BS Mathematics 2000 cum laude Minors: Computer Science, French Language Independent Project 1999: Elliptic Curves and Applications
Denis-Diderot Université de Paris VII	1998-1999 Course work: mathematics, linguistics, theater, art history, mythology
New College Oxford University	Summer 1999 Course work: Law and Liability

Research Interests: Arithmetic Dynamics, Number Theory, Arithmetic Algebraic Geometry, Computational Algebraic Geometry, Computational Number Theory

Publications

1. Hutz, Normal Forms for Polynomial Dynamical Systems, ForALL Volume 1 Issue 1 (March 2023) 20-24.
2. Gauthier, Hutz, Kaschner, *Symmetrization of rational maps: arithmetic properties and families of Lattes maps of Pk*, Conformal Geometry and Dynamics 27 (2023), 98-117.
3. Benham, Galarraga, Hutz, Lupo, Peng, Towsley, *New normal forms for degree three polynomials and rational functions*. Involve, Vol. 16 (2023), No. 4, 605–620.
4. Benham, Galarraga, Hutz, Lupo, Peng, Towsley, *Integrality and Thurston Rigidity for Bicritical PCF Polynomials*. Periodica Mathematica Hungarica, Volume 87, pages 245–264, (2023).

5. Cai, Hutz, Mayer, Weinreich. *Automorphism Groups of Endomorphisms of P^1(F_p)*, Glasgow Mathematics Journal, Volume 65, Issue 1, January 2023, 222 – 255.
6. Hutz, Patel, *Periodic points and tail lengths of split polynomial maps modulo primes*, Involve, Vol. 15 (2022), No. 2, 185–206.
7. Gontmacher, Hutz, Jorgenson, Srimani, Xu, *Automorphism loci for degree 3 and degree 4 endomorphisms of the projective line*, New York Journal of Mathematics Volume 27 (2021), 1613-1702.
8. Hutz, *Multipliers and invariants of endomorphisms of projective space in dimension greater than 1*, Journal of Number Theory of Bordeaux Vol. 32, No. 2 (2020), pp. 439-469.
9. Hutz, Stoll, *Smallest representatives of SL(2,Z)-orbits of binary forms and endomorphisms of P^1*, Acta Arith. 189, 283-308 (2019).
10. Hutz, *Good reduction and canonical heights of subvarieties*. Mathematical Research Letters, 25:6 (2018).
11. de Faria, Hutz, *Automorphism groups and invariant theory on PN*. Journal of Algebra and Its Applications, 17:9 (2018) 38 pages. doi.org/10.1142/S0219498818501621.
12. Benedetto, Faber, Hutz, Juul, Yasafuku, *A large arboreal Galois representation for a cubic postcritically finite polynomial*. Research in Number Theory 3:29 (2017). doi.org/10.1007/s40993-017-0092-8.
13. B. Hutz, *Sage as a source for undergraduate research projects*, PRIMUS (2016), 1–14. DOI: 10.1080/10511970.2016.1192072.
14. de Faria, Hutz, *Combinatorics of cycle lengths on Wehler K3 surfaces over finite fields*, New Zealand Journal of Mathematics 45 (2015), 19–31.
15. Hutz, Towsley, *Thurston's theorem and Misiurewicz points for polynomial maps,* New York Journal of Mathematics, 21 (2015), 297–319.
16. Hutz, *Determination of all rational preperiodic points for morphisms of PN*, Mathematics of Computation, 84:291 (2015), 289–308.
17. Hutz, Manes, *The field of definition for dynamical systems on PN*, Bulletin of the Institute of Mathematics Academia Sinica, 9:4 (2014), 585–601.
18. Hutz, Szpiro, *Almost Newton, sometimes Lattès*, Journal of Number Theory, 136 (2014), 423–437.
19. Hutz, Tepper, *Multiplier spectra and the moduli space of degree 3 morphisms on P1*, JP Journal of Algebra, Number Theory and Applications, 29:2 (2013), 189 – 206.
20. Hutz, Ingram, *On Poonen's conjecture concerning rational preperiodic points of quadratic maps*, Rocky Mountain Journal of Mathematics, 43:1 (2013), 193–204.
21. Benedetto, Ghioca, Hutz, Kurlberg, Scanlon, and Tucker, *Periods of rational maps modulo primes*, Mathematische Annalen, 355:2 (2013), 637–660.
22. Hutz, *Effectivity of dynatomic cycles for morphisms of projective varieties using deformation theory*, Proceedings of the AMS 140 (2012), 3507–3514.
23. Hutz, Hyde, Krause, *Pre-images of quadratic dynamical systems,* Involve 4:4 (2011), 343–363.
24. Faber, Hutz, Stoll, *Pre-images of the origin: on the number of rational iterated pre-images of the origin under quadratic dynamical systems,* International Journal of Number Theory 7:7 (2011), 1781–1806.
25. Hutz, *Dynatomic cycles for morphisms of projective varieties*, New York Journal of Mathematics, 16 (2010), 125–159.
26. Hutz, *Rational periodic points for degree two polynomial maps on projective space*, Acta Arithmetica 141(2010), 275–288.
27. Hutz, *Finding Rational Periodic Points on Wehler K3 Surfaces*, New Zealand Journal of Mathematics 39 (2009), 133–141.
28. Hutz, *Good reduction of periodic points*, Illinois Journal of Mathematics 53:4 (Winter 2009), 1109–1126.
29. Faber, Hutz, Ingram, Jones, Manes, Tucker, Zieve, *Uniform bounds on pre-images on quadratic dynamical systems.* Mathematical Research Letters 16:1 (2009), 87–101.

Publications in Progress

1. Hutz, Hyde, *Extreme Examples in Arithmetic Dynamics using Reinforcement Learning*.

Books

1. Hutz, *An Experimental Introduction to Number Theory*, Undergraduate Texts in Pure and Applied Mathematics Volume 31, American Mathematical Society, 2018.

Books in Progress

1. Hutz, *Computational Arithmetic Dynamics* (graduate textbook)

Other Works

1. MathBases – (https://mathbases.org) An on-line searchable database of mathematical databases. Co-founder and member of review board
2. DynaBase – An on-line searchable database of dynamical systems. Beta version to be made public in fall 2024.

Undergraduate Supervised Research

1. Brendan Jones. *A Greedy Approach to Long Integer Sequences Divisible by the Fewest Primes*. Spring 2024
2. Alex Fagan. *Improving the Automorphism Group Algorithm for Dynamical Systems in Sage*. Spring 2021.
3. **Summer@ICERM 2019** – REU in Arithmetic Dynamics.
   - Benham, Glarraga, Hutz, Lupo, Peng, Towsley, *Two New Normal Forms for Polynomial Endomorphisms of the Projective Line with Applications to Postcritically Finite Maps*. Submitted. arxiv.org/2001.06164
   - Cai, Hutz, Mayer, Weinreich. Automorphism Groups of Endomorphisms of P^1(F_p). submitted. arxiv.org/2003.12113
   - Gontmacher, Hutz, Jorgenson, Srimani, Xu. Automorphism loci for degree 3 and degree 4 endomorphisms of the projective line. Submitted. arxiv.org/2007.15483
4. Lauren Schmiedeler, Ellen Stonner, and Nolan Murphy, *First Occurrence and Frequency of Invisible Lattice Point Patterns*. SIAM Undergraduate Research Online, Volume 14, 2021
5. Teerth Patel, *Dynamical statistics of morphisms over finite fields*. 2016.
6. Sarah Blackwell, *Good reduction of preperiodic points*, Minnesota Undergraduate Journal of Mathematics, 4:1 (2018).
7. Jorgenson, *Computing the elementary symmetric polynomials of the multiplier spectra of z^2 + c*, Rose-Hulman Undergraduate Mathematics Journal, 16:2 (2015), 195-214.
8. Seetermado, *Failure of Thurston's theorem modulo p*, senior project in mathematics, spring 2014.
9. Rose, Wu, *Improvement to rational preperiodic point algorithms,* senior design project in computer science, academic year 2013-2014.
10. de Faria, Hutz, *Combinatorics of cycle lengths on Wehler K3 surfaces over finite fields*, New Zealand Journal of Mathematics 45 (2015), 19-31.
11. Hutz, Hyde, Krause, *Pre-images of quadratic dynamical systems,* Involve, 4:4 (2011), 343-363.
12. Hyde, *On the number of pre-images of -1 under quadratic dynamical systems,* American Journal of Undergraduate Research, 9:1 (2010), 19-26.

Graduate Students

1. Drew Shotwell – Saint Louis University, Mathematics, MA, Thesis: The Automorphism Group of Second Iterates of M2. Expected Summer 2024

2. Asma Zangana – Saint Louis University, Mathematics, MA, Thesis: *Computation of Minimal and Formal Periodic Points for Dynamical Systems in Projective Space.* May 2021.
3. Louis Ruben – Saint Louis University, Mathematics, MA. Thesis: *Generalizations and applications of the prime number theorem*. August 2018.
4. Sean Nemetz – Saint Louis University, Mathematics, MA. Thesis: *Lehmer's conjecture for function fields*. May 2017.
5. Rebecca Lauren Miller – Saint Louis University, Mathematics, MA. May 2017.
6. Joao de Faria – Florida Institute of Technology, Mathematical Sciences, MS 2015. Thesis: *An algorithm to compute automorphism groups for morphisms of P2*. May 2015.

Thesis Committees

1. Patrick Ingram's Student at York University, PhD. July 2024
2. Tong Si – PhD oral exam May 2024 – Saint Louis University
3. Charles McCauley – Mathematics, PhD oral exam Feb. 2015 – Saint Louis University
4. Evan Stoner – Computer Science, MS April 2015 – Florida Institute of Technology
5. Brad Rees – Computer Science, PhD 2015 – Florida Institute of Technology

Other Supervised Research

1. Mentor for Sage – Google Summer of Code
    a. Summer 2024: Nate Bolin – Arithmetic Dynamics for Sage
    b. Summer 2023: Jing Guo – Arithmetic Dynamics for Sage
    c. Summer 2022: Jing Guo – Improving Height Functionality
    d. Summer 2021: Alex Galarraga – Dynamical Systems for Sage
    e. Summer 2020: Alex Galarraga – Berkovich Projective Space
    f. Summer 2018: Raman Raghukul – Rational Points on Varieties
    g. Summer 2017: Benjamin Barros – Mandelbrot and Julia sets for Sage.
    h. Summer 2017: Rebecca Lauren Miller – Expanding the dynamical systems functionality
    i. Summer 2016: Grayson Jorgenson – Computational aspects of curves for Sage.
    j. Summer 2016: Rebecca Lauren Miller – Conjugating sets for projective morphisms.

Research Grants and Funded Workshops

1. Sage-days 104 – Arithmetic Dynamics. Saint Louis University, 4 day workshop. Co-PI. NSF grant #1906266, $22,375.
2. Summer@ICERM REU: arithmetic dynamics summer research program for 21 undergraduate students, 4 faculty, and 4 graduate students at Institute for Computational and Experimental Research in Mathematics. 8 weeks Summer 2019. Co-PI
3. Sage Coding Sprint: *coercion for schemes* – Institute for Mathematics and Its Applications. September 6-9, 2017. Co-PI.
4. Collaborate@ICERM - *Computational Arithmetic Dynamics*. Co-organizer. July 2016.
5. NSF DMS-CDS&E-MSS - *Computational Tools for Dynamical Systems* $118,245 over 3 years 9/1/2014 – 9/1/2017, DMS-1415294.
6. Simons Collaboration Grant - $35,000 over 5 years 9/1/2014 – 9/1/2019 – declined due to NSF grant
7. American Institute of Mathematics week-long workshop on postcritically finite maps in complex and arithmetic dynamics (chair), March 2014.
8. Sage Days 55 – Four-day workshop on arithmetic and complex dynamics (chair), November 2013. Funded through Stein-Palmieri NSF grant #1015114, $15,000.

Invited Research Visits

1. University of Hawaii. Week-long collaboration visit. March 2017.
2. Institute for Computational and Experimental Mathematics Rhode Island, USA - Semester on Arithmetic and Complex Dynamics, Spring 2012
3. Scuola Normale Superiore di Pisa, Italy. Intensive research period on Diophantine Geometry. 10/8/2012 – 10/12-2012. Umberto Zannier.

4. University of Rochester, New York, USA. 1/18/2011-1/22/2011. Thomas J. Tucker
5. University of California Berkeley, California, USA. 11/1/2010 – 11/16/2010. Thomas Scanlon

Organizing and Leading the Sage-Dynamics Project

Sage is open source mathematical research software (www.sagemath.org). The sage-dynamics project is to implement arithmetic and complex dynamical functionality for Sage. Status is maintained through a Google group and a wiki page (wiki.sagemath.org/dynamics/ArithmeticAndComplex).

Internal Projects Funded

1. **Mathematics Advancement Center** 2013 (Florida Institute of Technology) – A tutoring and education center for all levels of mathematics. Joint with department head to get buy-in at all levels of administration. Oversaw the hiring, development, and implementation of the center. Support included central space on campus completely remodeled, hiring a full-time director, an instructor, and an office manager. Perpetual funding for graduate and undergraduate tutors to staff the center. The project includes the creation of intensive sections of precalculus and calculus 1 with increased meeting hours per week and small-group tutoring in the center with the goal of increasing both the pass rate and future success in higher level courses.
2. **Undergraduate Computation Lab** 2013 (Florida Institute of Technology) – A fully equipped research space and computation lab for undergraduate research. Joint with computational research group in the mathematics department. Funding included remodeled space on campus and $20,000 for the purchase of equipment.
3. **Webwork** 2013 (Florida Institute of Technology) **–** Proposal approved to begin using the software WebWork for mathematics courses and the mathematics placement exam. Funding includes $4,000 for hardware and one semester with a full-time graduate student and one semester with a half-time graduate student for set-up and training.

Teaching Experience

Graduate Courses

Algebraic Number Theory	Florida Tech	Fall 2013
Abstract Algebra	Florida Tech	Spring 2014
Abstract Algebra	St. Louis Univ	Fall 2022, 2023, Spring 2024
Algebraic Geometry	St. Louis Univ	Fall 2016
Computational Algebra	St. Louis Univ	Fall 2023
Introduction to Number Theory	St. Louis Univ	Spring 2017, 2021
Computational Algebraic Geometry	St. Louis Univ	Spring 2020

Undergraduate Courses

Functions and Equations for Calculus	Brown University	Summer 2005, 2006, 2007
Summer Science	Amherst College	Summer 2008
Trigonometry Review	Florida Tech	Fall 2012, 2013
Freshman Seminar	St. Louis Univ.	Fall 2022, 2023
Discrete Mathematics	St. Louis Univ	Fall 2017, 2018, 2019, 2020, Spring 2019
Pre-Calculus	St. Louis Univ	Fall 2019
Calculus I	Brown University	Fall 2003
	Amherst College	Fall 2007
	St. Louis Univ	Fall 2015 (2 sections), 2017
Calculus II	Brown University	Fall 2004, 2005, 2006
	Amherst College	Spring 2009, Fall 2009
	Hunter College	Fall 2011 (2 sections)
Multivariable Calculus	Wheaton College	Spring 2006
	Amherst College	Fall 2007, 2008, 2009 Spring 2008, 2010

	Florida Tech	Fall 2012, 2013, Spring 2014 (2 sections), Fall 2014 (2 sections)
Principles of Mathematics	St. Louis Univ	Spring 2017, 2021, 2022, Fall 2020
Linear Algebra	St. Louis Univ	Spring 2016, 2018
Linear Algebra for Engineers	St. Louis Univ	Spring 2020
Introduction to Number Theory	Amherst College	Fall 2008
	Florida Tech	Spring 2013
	St. Louis Univ	Spring 2017, 2019, 2021
Introduction to Real Analysis	Amherst College	Spring 2008, 2009, 2010
Abstract Algebra	Florida Tech	Fall 2013
	St. Louis Univ	Fall 2016
Complex Analysis	Florida Tech	Fall 2014
Topics: Research in Number Theory	Amherst College	Fall 2009

Other Academic Experience

Teaching Consultant — **The Sheridan Center for Teaching and Learning,** Brown University, Providence, RI 2005-2007. Upon request, observe, videotape, and evaluate the effectiveness of classroom teaching techniques. Prepare a written report and discuss conclusions with the observee.

Consultant — **Division of Engineering, Brown University**, Providence, RI, summer 2006. Assisted in one-week program for graduate students and post-doctoral students on facilitating effective research, focusing on including undergraduates in their research.

Professional Training

Teaching Certificate I Program	The Sheridan Teaching Seminar, Sheridan Center for Teaching and Learning, Providence, RI, 2003
Teaching Certificate II Program	The Classroom Tools Seminar, Sheridan Center for Teaching and Learning, Providence, RI, 2004
Teaching Certificate III Program	Professional Developmental Seminar for Advanced Graduate Students, Sheridan Center for Teaching and Learning, Providence, RI, 2005

Awards and Honors

Department of Mathematics Outstanding Teaching Award 2006-2007	Brown University
Brown University Dissertation Fellowship 2007	Brown University
Brown\Wheaton Faculty Fellow 2006	Brown University
VIGRE Fellow 2002-2005	Brown University
Lord Rothermere Scholar 1999	Oxford University
Angier B. Duke Memorial Scholarship 1996-2000	Duke University

Patents

US Patent No. 20050091213 – Schutz et al. "Interoperable credential gathering and access modularity"
US Patent No. 20060242427 – Ruzyski et al. "Credential interface"

Departmental and University Service

Coordinator of Graduate Program	2022 - present
Interim Coordinator of Graduate Program	Spring 2019
Department assessment committee – member	2018-2019
College of Arts and Sciences Faculty Council Department Representative	2016 – 2018
Department chair search committee	2017
Department graduate committee – member	2015-2017

Administer WebWork server	Spring 2014 - 2015
Administer undergraduate computation lab	Spring 2013 - 2015
Liaison to registrar for new intensive service courses	Fall 2013 - 2015
Search committee – Director of Mathematics Advancement Center	Spring 2013
Search committee – Instructor	Spring 2013
Organizer – Florida Tech departmental colloquium	2012 - 2014
Chair of committee to update graduate program requirements	2012
Putnam preparation	2008 -2010, 2012

Other Service and Memberships

Organizing Committee for AMS Central Sectional Meeting	2024 - present
Mathematical Reviews - MathSciNet Reviewer	2015 - present
AMS Member	2002 - present
MAA Member	2002 - present
Organizer: Florida Tech Department Colloquium	2012-2014
Coordinator: New York Joint Columbia-CUNY-NYU Number Theory Seminar	2010 - 2012
Organizer: CUNY RTG Distinguished Undergraduate Lecture	Spring 2011
Mathematical Research Community: Model Theory	2010
Five College Number Theory Seminar	2007 - 2010
Sheridan Center Mathematics Department Liaison	2006 - 2007
Brown Graduate Student Seminar	2002 - 2007
Duke Admissions Alumni Advisory Committee	2004 – 2007, 2017 - present
Duke University Mathematics Union	1996 – 2000
Referee, various mathematical journals and granting organizations	on-going
Board Member, The SHANK2 Foundation, 501(c)(3)	2021 - present

Outreach Activities

1. Supervision of high school mathematics project on Elliptic Curve Cryptography	Fall 2012-Spring 2013
2. Florida Tech Liberal Arts, Science & Engineering Resource Day for high school students	Fall 2013, Fall 2014
3. Brazil Scientific Mobility Student, Jacqueline Alves De Silva, Research Project: Dynamical systems and Sage	Spring 2015

Recent Conferences and Lectures

Joint Mathematics Meetings Jan 8-10, 2025.
AMS Special Session on Mathematics Informed by Computing
"Using a Genetic Algorithm to Discover Extreme Examples in Arithmetic Dynamics"

American Institute of Mathematics. Dec 3-7, 2023
Open-source cyberinfrastructure supporting mathematics research
"A Database of Dynamical Systems"

University of South Alabama, Department Colloquium.
"Automorphism Groups for Arithmetic Dynamical Systems", March 2023.

The Citadel. Department Colloquium. "Department Strategic Plan", March 2023

Equidistribution and Arithmetic Dynamics. Oklahoma State University, June 20-24, 2022
Contributed Talk: 'Compute algebraic equations for dynatomic cycles'
Mini-Course: `Resultants and applications to dynamical systems'

Australian Math. Soc. Meeting: Special Session on Number Theory and Algebraic Geometry, December 8--10, 2020. `Rational Preperiodic Points for Endomorphisms of Projective Space with Automorphisms.'

Sage-days 110 - Virtual Sage-days. October 29--30, 2020. ``Automorphisms for Endomorphisms of Projective Space."

Joint Mathematics Meetings January 16--19, 2020. Denver CO. Special Session on Arithmetic Dynamics, ``Automorphisms for endomorphism of $\mathbb{P}^1$.

Langenhop Lecture and Southern Illinois University Mathematics conference May 14--15, 2019. Algebra/Number Theory session invited speaker. ``Smallest representatives of $\SL(2,\mathbb{Z})$-orbits of binary forms and endomorphisms of $\mathbb{P}^1$".

Spring Central and Western Joint Sectional Meeting University of Hawaii at Manoa, Honolulu, HI, March 22-24, 2019. Special Session in Arithmetic Dynamics. ``Smallest representatives of $\SL(2,\mathbb{Z})$-orbits of binary forms and endomorphisms of $\mathbb{P}^1$".AMS

Spring Eastern Sectional Meeting, Northeastern University, Boston, MA April 21-22, 2018. Special Session on Arithmetic Dynamics. ``Smallest representatives of SL(2,ZZ)-orbits of binary forms and endomorphisms of P1".

AMS/MAA Joint Meeting, co-organizer - Special Session on Arithmetic Dynamics, January 2018.

Sage-days 87: p-adics and LMFDB July 17-21, 2017. University of Vermont. Speaker: “Dynamical Systems in Sage”

Univ of Michigan, small dynamics meeting, 5/17/2017, ``A database for dynamical systems."

University of Missouri at Saint Louis, mathematics department colloquium 5/11/2017, “A bound on the periodic part of the orbit of a subvariety”

Univ of Hawaii, math dept colloquium 3/17/2017. “A bound on the periodic part of the orbit of a subvariety”

Collaborate@ICERM, week long collaboration workshop in arithmetic dynamics at the Institute for Computational and Experimental Mathematics (ICERM), July 25-29, 2016
Co-organizer with Joseph H. Silverman.

American Institute of Mathematics, week long workshop, May 16-20, 2016
invited participant –The Galois theory of orbits in arithmetic dynamics

AMS/MAA Joint Meetings Jan 6-10, 2016
Special Session in Arithmetic dynamics ``Automorphism Groups and Invariant Theory on PN"

RTG Workshop on Arithmetic Dynamics, December 3-6 2015. University of Michigan.
speaker – “Sage for dynamical systems”

Silvermania – In honor of Joe Silverman’s 60th birthday, August 2015

AMS/MAA Joint Meetings, January 2015
MAA Contributed Paper Session Perspectives and Experiences on Mentoring Undergraduate Students in Research

American Institute of Mathematics, week long workshop, March 2014
organizer - Postcritically Finite Maps in Complex and Arithmetic Dynamics

AMS/MAA Joint Meetings, January 2014
invited speaker - Special Session on Complex Dynamics - “Thurston's Theorem and Misiurewicz Points for Polynomial Maps”

Sage Days 55 – four-day workshop, Florida Institute of Technology, November 2013
organizer - Arithmetic and Complex Dynamics,

Banff International Research Station: The Art of Iterating Rational Functions, May 2013
invited speaker - “Sage for Dynamical Systems”

Florida Institute of Technology Mathematics Department Colloquium, March 2013
speaker - “What is Projective Space?”

Research Period in Diophantine Geometry - Scuola Normale, Pisa, Italy, October 2012
invited speaker – “Field of Moduli and Field of Definition for Maps on PN”

Florida Institute of Technology Mathematics Department Colloquium, October 2012
speaker - “Dynamics of Rational Maps Modulo Primes”
speaker - “Generalized Dynatomic Polynomials”

Institute for Computational and Experimental Mathematics
semester participant - Semester on Arithmetic and Complex Dynamics, Spring 2012

invited speaker - Workshop on Global Arithmetic Dynamics, March 2012 "Good Reduction and Computational Applications"

AMS/MAA Joint Meetings, January 2012

invited speaker - Special Session: Dynamical Systems in Algebraic and Arithmetic Geometry, "Periods of Rational Maps Modulo Primes"

University of Georgia Summer School in Arithmetic Dynamics, May 2011

invited speaker - "Good Reduction and Periodic Points"

invited speaker - "Introduction to Groebner Bases"

AMS/MAA Western Sectional Meeting, Special Session on Arithmetic Dynamics, May 2011

invited speaker - "Morphisms of Projective Space with Automorphisms"

University of Rochester Number Theory Seminar, January 2011

speaker - "Good Reduction and Moduli Spaces for Dynamical Systems on Projective Space"

AMS/MAA Joint Meetings, January 2011

speaker - Contributed Paper session, "Self-Maps of the Projective Plane with Automorphisms"

organizer - Special Session on Model Theory and Applications

Univ. of California Berkeley, Number Theory Seminar, November 2010

speaker - "Effectivity of Dynatomic Cycles for Morphisms of Projective Varieties Using Deformation Theory"

AMS/MAA Joint Meetings – Special Session: Arithmetic and Nonarchimedean Dynamics, January 2010

invited speaker - "On the Number of Rational Pre-images Under Quadratic Dynamical Systems"

AMS Mathematical Research Community: Model Theory of Fields, June 2010

CUNY Algebraic Dynamics Workshop, June 2010

Bellairs Workshop: Moduli Spaces and the Arithmetic of Dynamical Systems, May 2010

Computer Skills: Pari/gp, C/C++, Magma, Mathematica, Sage, Macaulay 2, Singular, basic web design