

Curriculum Vitae 2026

Eriko Hironaka

Contact Information

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Education

1990 PhD, Brown University, Providence, RI.
Advisor: Alan Landman.
1984 BA, Harvard University, Cambridge, MA. Major: Mathematics.

Employment

Spring 2026- Associate, Harvard University
Fall 2025 Visiting Professor, U. Zaragoza
2022-2025 NSF Program Director in MPS/DMS
2019-2022 Consultant to the American Mathematical Society Book Program
2019-2021 Lecturer, Mathematics Department, Harvard University
2015-2019 Senior Editor, Book Program, American Mathematical Society
2011-2016 Professor, Mathematics Department, Florida State University
2002-2011 Associate Professor, Mathematics Department, Florida State University
1997-2002 Assistant Professor, Mathematics Department, Florida State University
1994-1997 C.L.T.A. Assistant Professor, Mathematics, University of Toronto
1992-1994 Szegő Instructor, Mathematics, Stanford University
1991-1992 Visiting Professor, Max-Planck-Institut-für-Mathematik, Bonn, Germany
1990-1991 Visiting Assistant Professor, Stanford University
1989-1990 Visiting Assistant Professor, Haverford College

Awards and Recognitions

2023, 2024, 2025 NSF Special Act Award
2016 Professor Emerita, Florida State University
2014 Marion Bradley Brennan Professorship, Florida State University

Administrative experience

National Science Foundation (2022-2025) MPS-DMS Topology and Geometric Analysis Program Director

Panel organization and proposal evaluation and processing: Led or co-led approximately 8-10 panels each year working in teams of 3-6. Processed approximately 100 proposals per year, wrote review analyses, corresponded with PIs, panelists and team members, coordinated with members of other programs and directorates.

Other: Initiated joint research award opportunity for PIs of Japan Society for the Promotion of Science (JSPS) and the NSF Office of International Science and Engineering (OISE). Drafted interagency agreement.

American Mathematical Society (2016-2022)

Book Acquisitions: Recruit and correspond with potential authors of university textbooks and research monographs in mathematics; find reviewers for the books; give feedback to authors and advice on preparing their books for publication; prepare project and pricing sheets and explain to the publication committee the book's intellectual merit and audience.

Writing: Back cover summaries for books, wrote a regular bimonthly column for the AMS Bookshelf in AMS Notices, ran a blog called Book Ends (2016-2020) with periodic interviews of mathematical book authors.

Other: Initiating and managing AMS Open Math Notes - a recently developed free repository for

downloadable books in progress and lecture notes, sometimes called “arxiv for math books”. Monitoring, fixing bugs, corresponding with advisory board.

Research Teaching and Department Service

Background and Interests: algebraic geometry, geometric topology, complex dynamical systems

Publications:

- Standardly embedded train tracks and pseudo-Anosov maps with minimum expansion factor, joint with Chi Cheuk Tsang (2023) Groups, Geometry and Dynamics (appeared online in July, 2024)
- Quotient Families of Mapping Classes, Topology Proceedings vol 56, 2020, p. 161--196
- The augmented deformation space of rational maps, in a Panorama of Singularities, Contemporary Mathematics, vol. 742, Amer. Math.Soc, 2020, pp. 85-107
- A disconnected deformation space of rational maps, joint with Sarah Koch J. of Mod. Dynam. vol. 11, 2017, p. 409-423
- On Coxeter mapping classes and fibered alternating links. joint with Livio Liechti, Mich. Math. J. vol. 65 (4) 2016, p. 788-812)
- Digraphs and cycle polynomials for free-by-cyclic groups. joint with Yael Algom-Kfir and Kasra Rafi, Geometry and Topology vol.9 (2), 2015, p.1111-1154)
- Penner sequences and asymptotics of minimum dilatations for subfamilies of the mapping class group. Topology Proceedings vol. 44, 2014, p. 315-324
- Lipschitz constants to curves complexes. joint with Vaibhav Gadre, Christopher Leininger and Richard Kent. Math. Res. Letters vol. 10 (2013) no. 4, p. 1-10
- Generalized lantern relations and planar line arrangements, in Computational Algebraic and Analytic Geometry, Contemporary Mathematics, vol 572, 2012, pp. 113-125
- Small dilatation pseudo-Anosov mapping classes coming from the simplest hyperbolic braid. Alg. and Geom. Top., vol 10, 2010, p. 2041-2060
- What is Lehmer's number?, in Notices of the A.M.S., vol. 56 (3), 2009, p. 374--375
- Cyclotomic factors of Coxeter polynomials (joint with Benedict H. Gross, and Curtis T. McMullen) J. Number Theory, vol. 129, 2009, p. 1034 -1043
- A family of pseudo-Anosov braids with small dilatation (joint with Eiko Kin), Alg. and Geom. Top., vol. 6, 2006, 699-738
- Salem-Boyd sequences and Hopf plumbing, Osaka J. Math. vol. 43 (3), 2006, 497-516
- Chord diagrams and Coxeter links, J. London Math. Soc. vol. 69 (2), 2004, p. 243-257
- Lehmer's problem, McKay's correspondence, and 2,3,7, Contemp. Math. Proc. vol. 327, 2003, p. 123 - 138
- The Lehmer polynomial and pretzel knots, Can. Math. Soc. Bulletin, vol. 44 (4), 2001, p. 440 - 451 (with corrections)
- The arithmetic and geometry of Salem numbers (joint with Eknath Ghate) Bull. Amer. Math. Soc. (N.S.) vol. 38 (3), 2001, p. 293 -- 314
- Boundary manifolds of line arrangements. Math. Ann. vol. 319, 2001, p. 17 - 32
- Plumbing graphs for normal surface-curve pairs Advanced Studies in Pure Mathematics, Arrangements - Tokyo 1998
- Alexander stratifications of character varieties. Ann. de l'Inst. Four., vol. 47 (2), 1997, p. 555 -- 583.
- Torsion points on an algebraic subset of an affine torus. Inter. Math. Res. Not., (19), 1996, p. 953 -- 982.
- Multi-polynomial invariants for plane algebraic curves. Proceedings: Conference on algebraic geometry and singularities. Beijing 1994
- Abelian coverings of the complex projective plane branched along configurations of real lines. Memoirs of Amer. Math. Soc., vol. 105 (502), 1993.
- Intersection theory on branched covering surfaces and polynomial periodicity. Inter. Math. Res. Notices., (6), 1993, p. 185 -- 196.
- Polynomial periodicity for Betti numbers of coverings surfaces. Invent. Math. vol. 108, 1992, p. 289 -- 321.

Recent Contracts and Grants

- Simons Foundation Collaboration Grant (Florida State University)
Topology and dynamics in low dimensions. (Aug 2016 - July 2022)
- Simons Foundation Collaboration Grant (Florida State University)
Fibered 3-Manifolds and their Monodromy. (Jul 2011–Aug 2016)

Undergraduate Research Supervision at Harvard

- (Summer 2020) Andrew Garber (PRISE undergraduate program for research in science and engineering)
- Other less formal mentoring (2019-2021)

Doctoral Thesis Supervision at FSU

- M. Aktas (PhD 2017), R. Billet (PhD 2016), J. Armstrong (PhD 2012), A. Valdivia (PhD 2011)

Recent Invited Lectures

- (June 2026) 2026 Early Career Complex Dynamics Workshop (U. Michigan, Ann Arbor, MI)
Title: Moduli space of Quadratic Rational Maps
- (Jan 2026) Seminar (Osaka University, Japan)
Title: On Lehmer's number and its many appearances in topology and geometry
- (Jan 2026) Workshop: Growth 5 (Waseda U., Japan)
Title: Coxeter links, and birational automorphisms of the complex projective plane
- (Nov 2025) Seminar (U. Zaragoza, Spain)
Title: *Fundamental group of the equalizer vs. the equalizer of the fundamental group*
- (May 2025) Workshop: Degeneration Techniques for Rational Maps (U. of Warwick, UYK)
Title: *Combinatorial deformations of quadratic rational maps with partial portraits*
- (April 2025) PATCH Seminar (Bryn Mawr U, PA)
Title: *Connectedness of Moduli and Deformation spaces for rational maps I,II.*
- (March 2025) Women in Mathematics Lecture (Florida State University, Tallahassee, FL)
Title: *Lehmer's number in Topology, Geometry and Dynamics*
- (May 2024) St. Louis Topology Conference (Wash. U., St. Louis, MO)
Title: *Ferris Wheel Mapping Classes and the "shape" of small dilatation pA maps*
- (April 2023) Dynamics Seminar (Kyoto University, Japan)
Title: *On the connectivity of Per_n and its deformation space.*
- (April 2022) Research Seminar (MSRI, Berkeley, CA)
Title: *Deformation Spaces of Rational Maps*
- (March 2022) Topology Seminar (U.C. Berkeley, CA)
Title: *Lower bounds for expansion factors of fully-punctured pseudo-Anosov braid monodromies*
- (June 2021) No Boundaries Seminar (U. Chicago, IL)
Title: *Lehmer's number in geometry and dynamics*
- (March 2021) AMS Sectional Meeting (Brown U., RI)
Title: *On deformation spaces for rational maps*
- (May 2020) Arithmetic and Dynamics International Online Seminar (ADIOS, online conference)
Title: *On the connectivity of the Epstein Deformation Space for $Per_4(0)^*$ maps.*

Conference Organization and Service

- (2024-2025) Co-Editor with Jose Ignacio Cogolludo,
AMS Contemporary Mathematics: *Algebraic and Topological Interplay of Algebraic Varieties*, a cooperation volume with RSME.
- (2019) Co-organizer, IPAM Workshop - *Braids, Resolvent Degree and Hilbert's 13th Problem*, IPAM, CA (with B. Farb, M. Kisin, J. Wolfson)
- (2018) Co-organizer, *Conference on Growth in Topology and Number Theory: Volumes, Entropy, and L2-torsion*, Hausdorff Institute of Mathematics, Bonn, Germany (with S. Friedl, R. Kellerhals, W. Lueck)
- (2017) Co-organizer, *Workshop on Braids and Rational Maps*, Harvard University, MA (with S. Koch)

Service at Florida State University (2011-2016)

Department

Member, Executive Committee (2013-2014)
Faculty Evaluation Committee (2013-2014).
Pure Mathematics Program Director (2013-2014)
Outreach Event Organizer, Department Open House "Math Fun Day" (2013-2015)

University

(Fall 2014) Science Committee for Faculty Promotions
(Fall 2013) Marcus Professorship Award selection committee
(Fall 2012) Chair search committee, Psychology Department