Curriculum Vitae
Eriko Hironaka

General Information

University address: Pure Mathematics
Department of Mathematics
College of Arts & Sciences
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Florida State University
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Professional Preparation

1990   Doctor of Philosophy, Brown University, Providence, RI. Major:
Mathematics. Supervisor: Alan Landman.
Thesis Title: *Abelian coverings of the complex plane branched along
configurations of real lines*.

1987   Masters Degree, Brown University, Providence RI. Major: Mathematics.
Algebraic Geometry. Supervisor: William Fulton.
Thesis Title: *Branched Coverings of Normal Varieties*.

1984   BA, Harvard University, Cambridge, MA. Major: Mathematics.

Professional Experience

2011–present   Professor, Florida State University.

2002–2011   Associate Professor, Mathematics, Florida State University.

1997–2002   Assistant Professor, Mathematics, Florida State University.

1994–1997   C.L.T.A. Assistant Professor, Mathematics, University of Toronto.

1992–1994   Szego Instructor, Mathematics, Stanford University.

Visiting Professorships (last five years)

2011–2012   Tokyo Institute of Technology, Tokyo, Japan. Department of Mathematics.

Fall 2009   Harvard University, Cambridge, MA. Department of Mathematics.

Current Membership in Professional Organizations

American Mathematical Society

Research

Program of Research and/or Focus of Original Creative Work

My area of interest is low-dimensional topology and geometry. I study algebraic curves and surfaces, knots and links, 3-manifolds, surface and free group automorphisms, and polynomial invariants.

Contracts and Grants Funded

Hironaka, Eriko (PI). (Jul 2011–Aug 2016). *Fibered 3-Manifolds and their Mondromy*. Funded by Simon Foundation. (INITIAL). Total award $35,000.

Hironaka, Eriko (PI). (Apr 2009–Mar 2010). *Topology of Algebraic Varieties*. Funded by National Science Foundation. (0855500). Total award $49,860.

Refereed Journal Articles (last five years)

Hironaka, E. (2014, submitted) *Short circuits on train track automata*, 22 pages.

Algom-Kfir, Y., Hironaka, E., Rafi, K. (2013, submitted) *Digraphs and cycle polynomials for free-by-cyclic groups*, 41 pages.

Hironaka, E. (2013, submitted). *Mapping classes associated to mixed-sign Coxeter graphs*. 38 pages.

Hironaka, E. (2013, submitted). *Quotient Families of Mapping Classes*. 33 pages.

Hironaka, E. (2014). Penner sequences and asymptotics of minimum dilatations for subfamilies of the mapping class group. *Topology Proceedings*, *44*, 315-324.

Gadre, E., Hironaka, E., Kent, R., & Leininger, C. (2013). Lipschitz constants to curves complexes. *Math Research Letters*, *20 (4)*, 1-10.

Hironaka, E. (2012). Generalized lantern relations and planar line arrangements.

Contemporary Math. Volume "Computational Algebraic and Analytic Geometry of Low-dimensional Varieties", 572, 113--125.

Hironaka, E. (2010). Small dilatation pseudo-Anosov mapping classes coming from the simplest hyperbolic braid. *Journal of Algebraic and Geometric Topology*, 15.

Gross, B., Hironaka, E., & McMullen, C. (2009). Cyclotomic factors of Coxeter polynomials. *Journal of Number Theory*, *129,* 1034—1043.

Hironaka, E. (2009). What is Lehmer's number? *Notices of the American Mathematical Society*, *56 (3)*, 374--375.

Presentations

Invited Keynote and Plenary Presentations at Conferences (last 5 years)

Hironaka, E. (presented 2013, March). *Minimum dilatation problem for pseudo-Anosov mapping classes (Semi-Plenary)*. Plenary presentation at 47th Spring Topology and Dynamics Conference, Central Connecticut State University, Hartford Connecticut.

Hironaka, E. (presented 2012, March). *Minimum dilatation problem and quasi-periodicity conjecture*. Plenary presentation at Annual Meeting, Mathematical Society of Japan, University of Science, Tokyo, Japan.

Invited Presentations at Conferences (last 5 years)

Hironaka, E. (presented 2013, July). *Geometric Fox calculus*. Presentation at Special Session in Geometry and Topology, American Math. Society and Romanian Math. Society, Alba Iulia, Romania

Hironaka, E. (presented 2013, February). *Constructions of pseudo- Anosov mapping classes with small growth rates associated to mixed-sign Coxeter graphs*. Presentation at Mini-workshop on ``Growth", Osaka City University, Osaka, Japan

Hironaka, E. (presented 2012, December). *Quasi-periodic mapping classes*. Presentation at Wasatch Topology Conference, University of Utah, Salt Lake City, Utah

Hironaka, E. (presented 2012, August). *Small dilatation pseudo-Anosov mapping classes*. Presentation at Low-dimensional Topology and Number Theory, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany.

Hironaka, E. (presented 2012, April). *Small dilatation pseudo-Anosov mapping classes*. Presentation at Intelligence of Low Dimensional Topology, Research Institute of Mathematics, Kyoto, Japan.

Hironaka, E. (presented 2012, March). *Constructions of pseudo- Anosov mapping classes with small growth rates associated to mixed-sign Coxeter graphs*. Presentation at Mini-Workshop on ``Growth'' at Osaka, Osaka City Unversity, Osaka, Japan.

Hironaka, E. (presented 2012, March). *Fibered faces and the dynamics of mapping classes in special subgroups of the mapping class group*. Presentation at Branched Coverings, Degenerations, and Related Topics 2012, Hiroshima University, Hiroshima, Japan.

Hironaka, E. (presented 2011, July). *The minimum dilatation problem for pseudo-Anosov maps*. Presentation at Moduli Spaces of Riemann Surfaces, Park City Mathematics Institute, Park City, Utah.

Hironaka, E. (presented 2011, March). *Small pseudo-Anosov maps and short loops in automata*. Presentation at 2011 Ahlfors-Bers Conference, Rice University, Houston, TX.

Hironaka, E. (presented 2010, June). *The ``shape'' of small dilatation pseudo-Anosov mapping classes*. Presentation at Teichmueller space workshop, Hausdorff Institute of Mathematics, Bonn, Germany.

Hironaka, E. (presented 2010, April). *Families of small dilatation mapping classes*. Presentation at Workshop on pseudo-Anosov mapping classes with small dilatation, University of Wisconsin, Madison, Wisconsin.

Hironaka, E. (presented 2010, March). *Mapping classes with small dilatation*. Presentation at Low Dimensional Topology and Number Theory II, Tokyo University, Graduate Center, Tokyo, Japan.

Hironaka, E. (presented 2007, October). *Cyclotomic factors of Coxeter polynomials*. Presentation at Low-dimensional Topology and Number Theory, Banff International Research Station, Banff, Calgary, Canada

Invited Seminar Talks (last five years)

Hironaka, E. (2013, June). *Mahler measure in geometry and Topology*. Delivered at Fables Geometriques Seminar, University of Geneva, Geneva, Switzerland.

Hironaka, E. (2013, June). *Minimum dilatation problem for pseudo-Anosov mapping classes*. Delivered at Institute Fourier, Topology Seminar.

Hironaka, E. (2012, October). *Lehmer's number and the golden mean*. Delivered at Undergraduate Research Colloquium, University of North Texas.

Hironaka, E. (2012, October). *Pseudo-Anosov mapping classes with small dilatation*. Delivered at Millican Colloquium, University of North Texas.

Hironaka, E. (2012, July). *Small dilatation pseudo-Anosov mapping classes*. Delivered at Topology Seminar, Josai University, Saitama, Japan.

Hironaka, E. (2012, June). *Generalized Coxeter graphs and Mapping Classes*. Delivered at Topology Seminar, Kyoto University, Kyoto, Japan.

Hironaka, E. (2012, April). *Mixed-sign Coxeter mapping classes*. Delivered at Dynamics, Seminar, Tokyo Institute of Technology, Tokyo, Japan.

Hironaka, E. (2012, April). *Pseudo-Anosov mapping classes with small dilatation*. Delivered at Topology Seminar, University of Tokyo.

Hironaka, E. (2012, January). *Lehmer's problem from the point of view of mapping class theory*. Delivered at Department of Mathematics, Tohoku University.

Hironaka, E. (2011, December). *Quasi-periodic mapping classes and fibered faces*. Delivered at Topology Seminar, Tokyo Institute of Technology, Tokyo, Japan.

Hironaka, E. (2010, October). *The monodromies of a fibered 3-manifold*. Delivered at Geometry and Topology Seminar, Columbia University.

Hironaka, E. (2010, March). *Mapping classes with small dilatation*. Delivered at University of Florida, Colloquium, Gaineville, Fl.

Hironaka, E. (2009, November). *Small dilatation pseudo-Anosov mapping classes coming from the simplest pseudo-Anosov braid*. Delivered at University of Illinois, Urbana-Champaign, Topology Seminar, Urbana-Champaign, IL.

Hironaka, E. (2009, November). *Small dilatation pseudo-Anosov mapping classes coming from the simplest pseudo-Anosov braid*. Delivered at University of Chicago, Topology Seminar, Chicago, IL.

Hironaka, E. (2009, October). *Small dilatation pseudo-Anosov mapping classes coming from the simplest pseudo-Anosov braid*. Delivered at Valley Geometry Seminar, Amherst, MA.

Hironaka, E. (2009, September). *Lehmer's problem and dilatations of mapping classes*. Delivered at Tufts University, Colloquium, Medford, MA.

Hironaka, E. (2009, September). *Small dilatation pseudo-Anosov mapping classes coming from the simplest pseudo-Anosov braid*. Delivered at Harvard University, Dynamics and Geometry Seminar, Cambridge, MA.

Hironaka, E. (2009, August). *Lehmer's problem and dilatations of mapping classes*. Delivered at Worldwide Center of Mathematics, Cambridge, MA.

Hironaka, E. (2009, March). *Pseudo-Anosov mapping classes with small dilatation constructed from graphs*. Delivered at Harvard University, Dynamics and Geometry Seminar, Cambridge, MA.

Teaching

Courses Taught

Applied Linear Algebra (MAS3150)
Introduction to Advanced Mathematics (MGF3301)
Elementary Topology I (MTG4302)
Mapping Class Groups (MTG5932)
Complex Analysis (MAA4402)
Geometric Topology Seminar (MTG6939)
Introduction to Analysis (MAA4224)
Representation Theory (MAS5932)
Geometric Topology Seminar (MTG6939)
Graduate Topology II (MTG5327)
Graduate Topology I (MTG5326)
Introduction to Analysis (MAA4224)
Advanced Seminar in Topology (MTG6939)
Introduction to Abstract Algebra II (MAS4303)
Special Topics in Mathematics (MAT5933)
Advanced Seminar in Algebra (MAS6939)
Introduction to Abstract Algebra I (MAS4302)
Introduction to Analysis I (MAA4224)
Engineering Mathematics I (MAP3305)
Ordinary Differential Equations (MAP2302)
Topics in Geometry (MTG5932)
Differential Topology (MAT5932)
Calculus II (MAC 2312)
Groups Rings and Vector Spaces I (MAS 5307)
Calculus I (MAC 2311)
Topology I (MTG5326)
Applied Linear Algebra (MAS3105)
Differential Topology (MTG5376)

Doctoral Committee Chair

Billet, R. doctoral student (2018)
Arnett, J. doctoral student (2018)
Aktas, M., doctoral student. (2016).
Valdivia, A. D., graduate. (2011). *Teichmuller polynomials and asymptotics of minimal dilatation pseudo-Anosov mapping classes.*

Doctoral Committee Cochair

Armstrong, J. K., graduate. (2012). *Mixed-Sign Coxeter Systems (preliminary).*
Mortada, J. W., graduate. (2011). *Embeddings of Artin Groups in the Mapping Class Group.*

Doctoral Committee Member (last five years)

Leona Sparaco, doctoral student (2017)
Imamoglu, E., doctoral student. (2016).
Adams, W., doctoral student. (2015).
Kunwar, V. J., doctoral candidate. (2014)
Waller, R. L., doctoral candidate. (2014)
Yuan, W., doctoral candidate. (2014).
Wang, D., doctoral candidate. (2013).
Duston, C. L., graduate. (2013).
Fullwood, J. A., graduate. (2012).
Wang, G., graduate. (2012).
Biswas, S., graduate. (2011).
Stryker, J. P., graduate. (2011).

Bachelor's Committee Chair

Dominic Pafundi, student. (2011). Thesis Title: *A simple roundhouse class of genus two.*

Bachelor's Committee Member

Smooha, N., student. (2011).

Service

Florida State University
FSU College Service

Member, Marcus Professorship Award Selection Committee (2013)
Outside Member, Psychology Department Chair Search Committee (2010)

FSU Department Service

Member, Faculty Evaluation Committee (2010-2011, 2014–present).
Member, Executive Committee (2008-2010, 2013–present).
Director, Pure Math Program (2008-2010, 2013–present).
Chair, Visibility Committee (2012–present).
Member, Graduate Committee (2002, 2005–present).
Chair, Unit Assessment Survey Committee (2002–2003).
Member, Visibility Committee (1999–2002).

The Profession

Editor for Refereed Journals

Editor, *Bulletin of Korean Mathematical Society* (2014–present).

Guest Reviewer for Refereed Journals (last five years)

Algebraic and Geometric Topology (2013).
Journal of Topology (2013).
Topology and its Applications (2013).
Journal of Homotopy Theory and Related Structures (2012–2013).
Pacific Journal of Mathematics (2012–2013).
Annales de l'Institut Fourier (2012).
Journal of Pure and Applied Algebra (2012).
Journal of Topology (2012).
Topology and its Applications (2012).
Journal of Mathematical Sciences of Japan (2011).
Manuscripta Mathematica (2011).
New York Journal of Mathematics (2011).
Tokyo Journal of Mathematics (2011).
Annals of Mathematics (2010).

Duke Mathematical Journal (2010)
Geometriae Dedicata (2010).
Journal of Geometry and Physics (2010).
Journal of Number Theory (2010).
Journal of Australian Mathematical Society (2009).
Journal of Geometry and Topology (2009).

Other service to the Profession (last five years)

Co-organizer, Mittag-Leffler Institute, Summer Workshop on Growth and Mahler Measure in Geometry and Topology (2013).
Committee on Women in the Mathematical Sciences, AMS-ASA-AWM-IMS-MAA-NCTM-SIAM (2010–2011).
Co-organizer, PI - NSF Conference Grant, Conference on Topology of Algebraic Varieties, Jaca, Spain (2009–2010).
Math Sci. Net – Reviewer (1990-present).

Service to the Community

Co-organizer, Math Fun Day: Mathematics Department Open house (October 2013)