

Ian Biringer

Department of Mathematics
Boston College
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Positions held

July 2012 – present Boston College
Assistant Professor

August 2009 – June 2012 Yale University
Gibbs Assistant Professor, NSF Postdoctoral Fellow

Degrees and Academic Experience

June 2009 University of Chicago
PhD - Mathematics
Thesis: *Algebra vs. geometry in hyperbolic 3-manifolds*

June 2005 University of Chicago
Master of Sciences - Mathematics

May 2004 Oberlin College
Bachelor of Arts - Mathematics with Highest Honors

May 2004 Oberlin College
Bachelor of Arts - Computer Science

June-July 2003 Oregon State University
Research Experiences for Undergraduates

Honors

September 2017 NSF CAREER Award
Rank, genus and Betti numbers of large-volume manifolds.

September 2016 NSF Grant - Topology

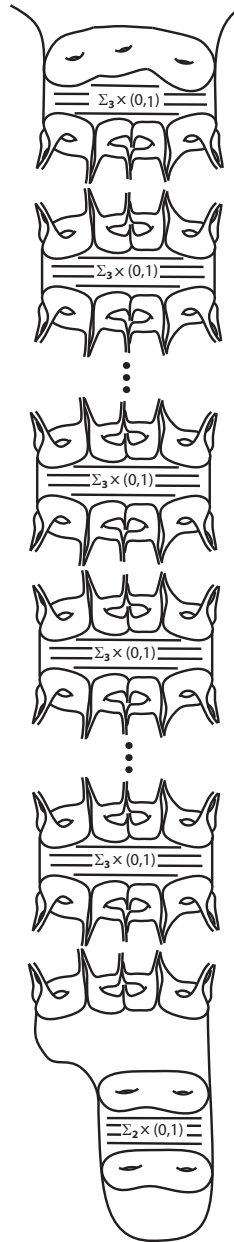
September 2012 NSF Grant - Topology

January 2009 NSF Postdoctoral Fellowship

March 2008 Graves Teaching Prize, University of Chicago

May 2004 Orr Memorial Prize in Mathematics, Oberlin College

2003-2004 Barry M. Goldwater Scholarship



Colloquia and Seminar Talks

- 2017 Brown University, Caltech, Yale University.
- 2016 University of Pittsburgh, Temple University, Yale University
- 2015 MIT, CUNY, Tufts.
- 2014 Colby College (Colloquium), Yale University
- 2013 Brown University, California Institute of Technology.
- 2012 Pennsylvania State University, University of Pennsylvania, Boston College, University of Iowa, University of Wisconsin, University of California - Berkeley.
- 2011 Yale University, University of Michigan, Purdue University, Tufts University, Harvard University, Université Paul Sabatier, UT-Austin, Rice University.
- 2010 Temple University, Pennsylvania State University, University of Maryland, California Institute of Technology, City University of New York, Brown University.
- 2009 University of Texas at Austin, University of Utah, Ohio State University, University of Illinois at Chicago, Université Paul Sabatier, College International of Budapest.
- 2008 University of Chicago, Yale University, Princeton University, Brown University, University of Michigan.

Conference Talks

- 2017 Virginia Topology Conference
- 2017 32nd Summer Conference on Topology and its Applications, Dayton, OH.
- 2016 Southern California Topology Conference
- 2015 Workshop on *Asymptotic Invariants of Groups* at Oxford
- 2015 Workshop on *Geometric Structures on 3-Manifolds* at IAS
- 2014 AMS Sectional on *Low-dimensional Topology and Group Theory* at UMBC
- 2013 *2nd Young Geometric Group Theorist Meeting* in Haifa, Israel
- 2013 AMS Sectional on *Hyperbolicity in manifolds and groups* at Temple University
- 2013 CMS Winter Meeting, Ottawa. Two talks: one in *Random Walks and Geometry* and one in *Geometric Group Theory and Low-Dimensional Topology*
- 2012 *Geometric Group Theory on the Gulf*
- 2012 *Kerckhoff 60th Birthday Conference*
- 2012 GEAR Senior Retreat at UIUC
- 2012 AMS sectional meeting on *Hyperbolic Geometry* at the University of Arizona
- 2012 CMS sectional meeting in Montreal, Québec
- 2011 *Filling invariants and asymptotic geometry* at the University of Indiana

2011 FRG Workshop organized by Colding, Minicozzi and Gabai at Princeton University

2011 AIM Workshop on L^2 -invariants and their relatives for finitely generated groups

2011 Wasatch Topology Conference

2010 Geometry and Topology of Character Varieties at National University of Singapore

2010 AMS sectional meeting at the University of Albuquerque

2010 Character varieties in the geometry and topology of low dimensional manifolds
at Banff International Research Station

2009 Wasatch Topology Conference

2009 AMS sectional meeting at San Francisco State University

2008 Ahlfors-Bers Colloquium at Rutgers University, Newark

Conferences Co-organized

2017 The 13th William Rowan Hamilton Workshop, Trinity College Dublin.

2017 Dynamics on Representation Varieties, in Rennes, France.

2014 The 10th William Rowan Hamilton Workshop, Trinity College Dublin.

2013 Special Session at the Spring 2013 AMS Sectional Meeting at Boston College

2013 GEAR Workshop on Higher Teichmüller Theory, Summer 2013

Papers

- *Iteration in Schottky space*,
with Cyril Lecuire.
(in preparation)
- *Convergence of normalized Betti numbers in nonpositive curvature*,
with Miklos Abert, Nicolas Bergeron and Tsachik Gelander.
(submitted)
preprint at <https://www2.bc.edu/ian-p-biringer/Papers/nud.pdf>
- *Thick hyperbolic 3-manifolds with bounded rank*,
with Juan Souto.
(submitted)
preprint at <https://arxiv.org/abs/1708.01774>
- *Unimodular measures on the space of all Riemannian manifolds*,
with Miklos Abert.
(submitted)
preprint at <https://arxiv.org/abs/1606.03360>.
- *Invariant random subgroups of semidirect products*,
with Lewis Bowen and Omer Tamuz.
(submitted)
preprint at <https://arxiv.org/abs/1703.01282>.

- *On the growth of L^2 -invariants of locally symmetric spaces, II: exotic invariant random subgroups in rank one,*
with M. Abert, N. Bergeron, T. Gelander, N. Nikolov, J. Raimbault and I. Samet.
(submitted)
preprint at <https://arxiv.org/abs/1612.09510>.
- *Determining the finite subgraphs of the curve graph,*
with Tarik Aougab and Jonah Gaster.
to appear in Groups, Geometry and Dynamics.
preprint at <https://arxiv.org/abs/1702.04757>.
- *Packing curves on surfaces with few intersections,*
with Tarik Aougab and Jonah Gaster.
to appear in IMRN.
preprint at <https://arxiv.org/abs/1610.06514>.
- *Metrizing the Chabauty topology,*
Geometriae Dedicata (2017).
preprint at <https://arxiv.org/abs/1610.07396>.
- *Nielsen equivalence in mapping tori over the torus,*
Conformal Geometry and Dynamics (2017).
preprint at <https://arxiv.org/abs/1610.07528>.
- *Ends of unimodular random manifolds,*
with Jean Raimbault.
PAMS (2017).
preprint at <http://arxiv.org/abs/1411.0561>.
- *On the growth of L^2 -invariants for sequences of lattices in Lie groups,*
with M. Abert, N. Bergeron, T. Gelander, N. Nikolov, J. Raimbault and I. Samet.
Annals of Mathematics (2017)
preprint at <http://arxiv.org/abs/1210.2961>.
- *Automorphisms of the compression body graph,*
with Nick Vlamis.
JLMS (2017).
preprint at <http://arxiv.org/abs/1508.02993>.
- *Intersection growth in groups,*
with Khalid Bou-Rabee, Martin Kassabov and Francesco Matucci.
TAMS (2016)
preprint at <http://arxiv.org/abs/1309.7993>.
- *Unimodularity of invariant random subgroups,*
with Omer Tamuz.
TAMS (2016).
preprint at <http://arxiv.org/abs/1402.1042>.
- *Ranks of mapping tori via the curve complex,*

with Juan Souto.

Crelle's Journal (2015).

preprint at <http://arxiv.org/abs/1409.1878>.

- *Extending pseudo-Anosov maps to compression bodies*,
with Jesse Johnson and Yair Minsky.
Journal of Topology (2013).
preprint at <http://arxiv.org/abs/1011.0021>.
- *On the growth of Betti numbers of locally symmetric spaces*,
with M. Abert, N. Bergeron, T. Gelander, N. Nikolov, J. Raimbault and I. Samet.
Comptes Rendus Mathematique (2011).
preprint at <http://arxiv.org/abs/1104.5559>.
- *Algebraic and geometric convergence of discrete representations into $\mathrm{PSL}_2 \mathbb{C}$* ,
with Juan Souto.
Geometry and Topology (2010).
preprint at <http://arxiv.org/abs/1010.0459>.
- *A finiteness theorem for hyperbolic 3-manifolds*,
with Juan Souto.
Journal of the London Mathematical Society (2011).
preprint at <http://arxiv.org/abs/0901.0300>.
- *The three gap theorem and Riemannian geometry*,
with Benjamin Schmidt.
Geometriae Dedicata (2008).
preprint at <http://arxiv.org/abs/0803.1250>.
- *Geometry and rank of fibered hyperbolic 3-manifolds*,
Algebr. Geom. Topol. (2009).
preprint at <http://arxiv.org/abs/0803.1253>.
- *Algebra versus geometry in hyperbolic 3-manifolds*,
Ph.D. Thesis - The University of Chicago (2009).

Teaching experience

Jul 2012 – present Assistant Professor at Boston College

Intro to Abstract Math, Linear Algebra (Honors), Analysis 1, Euclidean and Non-Euclidean geometry, Lie Groups, Differential Geometry, Introduction to Analysis, Differential Topology, Multivariable Calculus, Random Methods in Geometry

Aug 2009 – Jun 2012 Gibbs Assistant Professor at Yale University

Honors linear algebra and multivariable calculus, Graduate algebraic topology

Sep 2006 – June 2009 Instructor at the University of Chicago

IBL honors calculus, Multivariable calculus and linear algebra, IBL geometric group theory

Sep 2006 – Dec 2008 Mentor, University of Chicago DRP

Directed reading program for undergraduates in mathematics

Summers 2006 – 2008 Mentor, University of Chicago REU
Research experiences for undergraduates in mathematics

June 2008 – Aug 2008 Instructor, CAAP
Chicago Academic Achievement Program – Precalculus

Oct 2005 – June 2006 College Fellow at the University of Chicago
Teaching assistant for IBL honors calculus

June 2002 – Aug 2002 Tutor at UW-Fox Valley.

Jan 2001 – May 2004 Grader and Assistant at Oberlin College

Personal information

My birthdate is September 16, 1982. I am a US citizen.