Brian Freidin

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Appointments

2022–present	Assistant Professor, Auburn University
2021–2022	Assistant Research Professor, Auburn University
2019–2021	PIMS Postdoctoral Fellow, PIMS/UBC
Spring 2019	Visiting Assistant Professor, Brown University
Fall 2018	Visitor, Institute for Advanced Study

Education

2013–2018	Brown University PhD, Mathematics (under Georgios Daskalopoulos), May 2018 Masters of Science, Mathematics, May 2015
2010–2013	University of Illinois at Urbana-Champaign Bachelors of Science, 2013 Summa Cum Laude and Highest Distinceion in Mathematics

Teaching Experience

	Sp 2023	Linear Differential Equations, Auburn
	Fa 2022	Differential Geometry, Auburn
	Sp 2022	Elementary Partial Differential Equations, Auburn
	Fa 2021	Linear Differential Equations, Auburn
	Sp/Su/Fa 2020	Calculus III, UBC
	Fa 2019	Differential Calculus with Applications to Life Sciences, UBC
	Sp 2019	Linear Algebra & Honors Linear Algebra, Brown
University Courses	Sp 2018	TA, Analytic Geometry and Calculus, Brown
	Fa 2016	Linear Algebra, Brown
	Sp 2016	Introductory Calculus II, Brown
	Fa 2015	Advanced Placement Calculus, Brown
	Sp 2015	TA, Introductory Calculus, Brown
	Fa 2014	TA, Introductory Calculus II, Brown
	Fa 2011/Sp 2012	TA, Calculus II, UIUC

	2018–2022	Lead Instructor, MathILy Planned and lead class, wrote and critiqued problem sets, supervised and mentored apprentice instructors. Designed course in algebraic graph theory.
Summer Programs	2015–2017	Apprentice Instructor, MathILy Taught and co-taught classes, wrote and critiqued problem sets. Designed short courses on p-adic numbers, complexity theory, chip firing, and moduli spaces.
	2014	Junior Staff, HCSSiM Taught classes, critiqued problem sets. Designed short course on Banach-Tarski.

Publications

2021	*Balanced homogeneous harmonic maps between cones*, Preprint.
2021	*Harmonic maps between 2-dimensional simplicial complexes 2*, with Victòria Gras Andreu, Submitted.
2020	*On the proportion of transverse-free plane curves*, with Shamil Asgarli, Finite Fields and Their Applications **72**.
2020	*A Liouville-type theorem and Bochner formula for harmonic maps into metric spaces*, with Yingying Zhang, Comm. Anal. Geom. **28** no. 8.
2020	*Harmonic maps between ideal 2-dimensional simplicial complexes*, with Victòria Gras Andreu, Geom. Dedicata **208**.
2019	*Area bounds for free boundary minimal surfaces in a geodesic ball in the sphere*, with Peter McGrath, Journal of Functional Analysis **277**, no. 11.
2019	*A Bochner Formula for Harmonic Maps into Non-Positively Curved Metric Spaces*, Calc. Var Partial Differential Equations **58**, no. 4.
2018	*Sharp Area Bounds for Free Boundary Minimal Surfaces in Conformally Euclidean Balls*, with Peter McGrath, International Math. Research Notices **2020**, no. 18.
2017	*Free boundary minimal surfaces in the unit ball with low cohomogeneity*, with Mamikon Gulian and Peter McGrath, Proc. Amer. Math. Soc. **145**, no. 4.

Talks

02/2023	*Free boundary minimal surfaces in the ball* Topology Seminar, Auburn University
08/2022	*Eigenvalue problems on graphs and homogeneous functions on cones* Graduate Student Seminar, Auburn University
12/2021	*Applications and regularity of harmonic maps between singular spaces* Auburn University
09/2021	*Free boundary problems and discrete geometric flows* Graduate Student Seminar, Auburn University
01/2021	*Harmonic maps and geometric structures on simplicial complex* Auburn University
10/2019	*Harmonic maps on simplicial complexes* Differential geometry, Mathematical Physics, and PDE Seminar, UBC
12/2018	*Harmonic maps into singular spaces* Variational Methods in Geometry Seminar, IAS, Princeton
11/2018	*Harmonic maps between singular spaces* Geometry-Topology Seminar, University of Pennsylvania
10/2018	*Harmonic maps between singular spaces* Short Postdoc Talks, IAS, Princeton
9/2018	*Harmonic Maps on Ideal Hyperbolic Complexes* New Trends in Teichmüller Theory and Mapping Class Groups, Oberwolfach, Germany
4/2018	*Algebraic Origami* Graduate Student Seminar, Brown University
11/2017	*Geometry of harmonic maps into singular spaces* Differential Geometry Seminar, The Ohio State University
10/2017	*Geometry of harmonic maps into singular spaces* Analysis Seminar, Fordham University
9/2017	*Liouville Theorems* Graduate Student Seminar, Brown University

8/2017	*Harmonic maps and rigidity* GEAR Junior Retreat, Stanford
4/2017	*Harmonic maps and singular spaces* AMS Graduate Student Conference, Brown University
3/2017	*More Graph Coloring* Graduate Student Seminar, Brown University
10/2016	*Fibonacci numbers, period* Graduate Student Seminar, Brown University
3/2016	*Geometric Super Rigidity* Graduate Student Seminar, Brown University
2/2016	*A Bochner Formula for Harmonic Maps into Non-Positively Curved Metric Spaces* Geometry/Topology Seminar, Brown University
12/2015	*Sharp Area Bounds for Free Boundary Minimal Surfaces in Conformally Euclidean Balls* (with Peter McGrath) Geometric Aspects on Capillary Problems and Related Topics, Granada, Spain
11/2015	*The Bishop-Gromov Inequality* Junior Geometry/Topology Seminar, Brown University
9/2015	*The Heawood Bound* Graduate Student Seminar, Brown University
4/2015	*Symmetric Spaces* Lie Thoery Learning Seminar, Brown University
4/2015	*ABP Estimates* Informal PDE Seminar, Brown University
3/2015	*Harmonic Maps into Metric Spaces* Graduate Student Seminar, Brown University
12/2014	*Characteristic Classes in Complex Vector Bundles* Junior Geometry/Topology Seminar, Brown University

Awards

2019	PIMS Postdoctoral Fellowship
2014	Phi Beta Kappa Honor Society
2013	Bronze Tablet University Honors
2013	H. Roy Brahana Prize
2012	U of I Mock Putnam, 1st place
2012	Vincent O. Greene Scholarship in Mathematics
2012	Elizabeth R. Bennet Scholarship in Mathematics
2012	U of I Undergraduate Math Contest, 1st place
2011	Emily Mann Peck Scholarship
2011	U of I Undergraduate Math Contest, 1st place
2011	Pi Mu Epsilon Honor Society
2010–2013	James Scholar at UIUC
2010	National Merit Scholarship Finalist
2010	Glenbrook Scholar
2010	Douglas Cameron Baker Award