

Justin Lanier

CONTACT INFORMATION	School of Mathematics Georgia Institute of Technology 686 Cherry Street Atlanta, GA 30332	jlanier8@gatech.edu www.math.gatech.edu/~jlanier8
RESEARCH INTERESTS	Geometric group theory and geometric topology. Algebraic, geometric, and dynamical properties of mapping class groups of surfaces. Thurston maps and the branched mapping class monoid.	
EDUCATION	Ph.D. student in Mathematics, Georgia Tech 2015–present Advisor: Dan Margalit M.S. in Mathematics, Georgia Tech 2015–2017 B.A. in Liberal Arts, St. John’s College 2002–2005	
AWARDS	Graduate Student Travel Grant to Fall Sectional Meeting, 2018, AMS John R. Festa Fellowship for academic achievement and leadership, 2016, Georgia Tech Graduate Research Fellowship, 2016, National Science Foundation STEM Fellowship, Spring 2015, Georgia Tech Honorable Mention for the Solution of an Analytical Problem, 2004, St. John’s College Prize for the Solution of an Analytical Problem, 2003, St. John’s College	
PAPERS	Generalizing Brouwer: adding points to configurations in closed balls. with Lei Chen and Nir Gadish. preprint: arxiv.org/abs/1809.06946 , 2018. How to hear the shape of a billiard table. with Aaron Calderon, Solly Coles, Diana Davis, and Andre Oliveira. submitted. preprint: arxiv.org/abs/1806.09644 , 2018. Normal generators for mapping class groups are abundant. with Dan Margalit. submitted. preprint: arxiv.org/abs/1805.03666 , 2018. Generating mapping class groups with elements of fixed finite order. <i>Journal of Algebra</i> , 511 (2018), pp 455-470.	
RESEARCH TALKS	<i>Normal generators for mapping class groups are abundant</i> Vanderbilt Topology & Group Theory Seminar, November 2018 Special Session on Groups in Low-dimensional Topology and Dynamics, AMS Fall Southeastern Sectional Meeting, November 2018 UIUC Geometry, Groups and Dynamics Seminar, September 2018 New Trends in Teichmüller Theory and MCGs, Oberwolfach, September 2018 * The Roots of Topology, June 2018 Grad Student Conference in Algebra, Geometry, and Topology, Temple, June 2018	
(* INDICATES A LIGHTNING TALK)		

Special Session on Boundaries and Non-positive Curvature in Group Theory,
 AMS Spring Southeastern Sectional Meeting, April 2018
 University of Michigan Topology Seminar, February 2018
 Tech Topology Conference, Georgia Tech, December 2017
 * No Boundaries: Farb Birthday Conference, October 2017
 University of Georgia Geometry Seminar, October 2017

Generating mapping class groups with periodic elements

Grad Student Conference in Algebra, Geometry, and Topology, Temple, June 2017
 Special Session on Mapping Class Groups and their Subgroups, JMM, January 2017
 * Effective Methods in Hyperbolic Geometry & Free Groups, ICERM, May 2016
 Spring Topology and Dynamical Systems Conference, Baylor, March 2016
 * Tech Topology Conference, Georgia Tech, December 2015

CONFERENCES & WORKSHOPS ATTENDED	December	2018	Tech Topology Conference, Georgia Tech
	November	2018	AMS Fall Southeastern Sectional Meeting, U Arkansas
	September	2018	New Trends in Teichmüller Theory and MCGs, Oberwolfach
	August	2018	Geodesics on real hyperbolic manifolds, Connecticut College
	June	2018	The Roots of Topology, U Chicago
	June	2018	Topology Students Workshop, Georgia Tech
	June	2018	Graduate Student Conference in AG&T, Temple
	May	2018	Nonpositively Curved Groups on the Mediterranean, Haifa
	April	2018	AMS Spring Southeastern Sectional Meeting, Vanderbilt
	March	2018	ComSciCon, Atlanta
	December	2017	Tech Topology Conference, Georgia Tech
	November	2017	Geometry, Groups, and Dynamics, ICTS
	October	2017	No Boundaries: Farb Birthday Conference, U Chicago
	August	2017	Hamilton Workshop on Moduli Spaces, Trinity College
	August	2017	Braids and Rational Maps, Harvard
	August	2017	Geometry of Redistricting Workshop, Tufts
	June	2017	Graduate Student Conference in AG&T, Temple
	May	2017	Georgia International Topology Conference, University of Georgia
	May	2017	Shanks Lecture on Low-Dimensional Topology, Vanderbilt
	April	2017	Redbud Topology Conference, University of Arkansas
	March	2017	Young Geometric Group Theory Meeting VI, Oxford
	January	2017	Joint Mathematics Meetings, Atlanta
	December	2016	Tech Topology Conference, Georgia Tech
	November	2016	Virginia Topology Conference, UVA
	October	2016	Geometry of mapping class groups and $\text{Out}(F_n)$, MSRI
	July	2016	Second Summer School in Geometry & Topology, U Chicago
	June	2016	Illustrating Mathematics, ICERM
	June	2016	Topology Students Workshop, Georgia Tech
	May	2016	Effective Methods in Hyperbolic Geometry & Free Groups, ICERM
	April	2016	Geometric Methods in Group Theory, Vanderbilt
	March	2016	Spring Topology and Dynamical Systems Conference, Baylor
	March	2016	AMS Spring Southeastern Sectional Meeting, University of Georgia
	December	2015	Tech Topology Conference, Georgia Tech
June	2015	First Summer School in Geometry & Topology, U Chicago	
June	2015	Princeton Low-Dimensional Topology Workshop, Princeton	
January	2015	Joint Mathematics Meetings, San Antonio	
June	2014	Thurston Legacy Conference, Cornell	
January	2014	Joint Mathematics Meetings, Baltimore	

GRADUATE COURSEWORK	Georgia Tech	Algebra I, Differential Geometry, Differential Topology, Algebra II, Algebraic Topology, Real Analysis I, Algebraic Curves, Graph Theory, Teichmüller Theory, Advanced Classical Probability, Probabilistic Combinatorics, Thurston Maps, Heegaard Floer Homology, Torelli Groups, Galois Theory, 4-Manifolds	
	NYU	Topology I, Topology II, Complex Variables	
	Hunter College	Geometries	
	Boston University	Number Theory	
TEACHING EXPERIENCE	2015–16	Georgia Tech	Teaching assistant, Integral Calculus
	2013–15	Princeton Learning Cooperative	Unschooling counselor, teacher, and outreach coordinator
	2006–13	Saint Ann’s School	Middle and high school math teacher
	2005–06	The Calverton School	High school math teacher
SEMINARS ATTENDED	2015–present	Geometry and Topology Seminar, Georgia Tech Geometry and Topology Working Seminar, Georgia Tech Geometry and Topology Student Seminar, Georgia Tech Research Horizons Seminar, Georgia Tech	
	2014–15	Topology Seminar, Princeton	
	2013–14	Discrete Math Seminar, Princeton	
	2011–13	Hyperbolic Geometry Seminar, CUNY Graduate Center	
	July 2017	Polygonal Billiards Research Cluster, Tufts University Topics: Bounce Spectra; Square Flows on Translation Surfaces Organizer: Moon Duchin	
July 2010	University of Arizona REU in Geometry Topic: Visualizing Piecewise Flat Manifolds Advisor: David Glickenstein		
July 2007	PROMYS for Teachers, Boston University Topic: Fractional Linear Functions and Finite Fields Advisor: Kalin Kostadinov		
SERVICE ACTIVITIES	2018–present	Organizer for Mod Squad, an online grad student reading group	
	2017	Organizer for the Tech Topology Conference	
	2017, 18	Research team leader at Georgia Tech REU	
	2017–18	Founding member of School of Math Graduate Student Council	
	2017	Panelist on grad school at KSU Undergrad Math Conference	
	2017, 18	Volunteer judge for AWM Essay Contest	
	2017	Organizer of Geometry and Topology Student Seminar	
	2016, 17, 18	Panelist in first-year course: finding an advisor, NSF GRFP	
	2016–17	Graduate student representative to the Graduate Committee	
2015–17	Co-organizer of the Research Horizons Seminar		
2016, 17, 18	Student organizer of visiting day for admitted math grad students		

OUTREACH ACTIVITIES	2016–present	Session Leader at Emory Math Circle Emory University, Atlanta	
	Sept 16, 17	Table Leader at Julia Robinson Mathematics Festival Emory University, Atlanta	
	2011–2016	Co-author of Math Munch, A Digest of the Mathematical Internet mathmunch.org	
	April 2016	Invited Speaker for Family Friday event on billiards: “Pool Party” Museum of Mathematics, NYC	
	Feb 2016–18	Volunteer at math sessions on fractals, bubbles, and knots Science Night, Morningside Elementary School, Atlanta	
	Feb 2016	Table Leader: “Designing WiFi Networks” Future Tech, a middle school STEM outreach event, Georgia Tech	
	Sept 2015	Visiting Mathematician and Mathematical Artist Math-on-a-Stick, Minnesota State Fair	
	July 2015	Core Course Instructor Summer Program in Mathematical Problem Solving	
	March 2015	Invited Speaker for Boston Math Teachers’ Circle session on billiards Harvard University, Cambridge	
	2014, 2015	Co-organizer of Julia Robinson Mathematics Festival Princeton, NJ	
	2013–15	Co-organizer of Mercer County Math Circle Princeton, NJ	
	2013–14	Facilitator for “Math Is Personal” online course for teachers ichoosemath.com/smooc-launch	
	OTHER TALKS	<i>Perfect polyominoes</i> Undergraduate Seminar, Georgia Tech, November 2015 Club Math, Georgia Tech, October 2015 MOVES Conference, Museum of Mathematics, New York City, August 2015	
<i>Research Experiences for Secondary Teachers</i> Joint Mathematics Meetings, San Antonio, January 2015			
<i>Beamer and Inkscape</i> AMS Student Chapter Seminar, Georgia Tech, November 2017 Topology Students Workshop, Georgia Tech, June 2016			
MATHEMATICAL ART EXHIBITS		2014	<i>Scary-o’-graphic Projection</i> Bridges Conference
		2013	<i>Yoshimoto Shorts</i> Bridges Conference
RECREATIONAL MATH & EDUCATION CONFERENCES (SINCE 2015)		March 2018	ComSciCon–Atlanta, Atlanta
	March 2016	Gathering for Gardner 12, Atlanta	
	November 2015	NCTM Regional Conference & Exposition, Minneapolis	
	October 2015	Georgia Mathematics Conference, Eatonton, GA	
	August 2015	MOVES Conference, Museum of Mathematics, NYC	
	April 2015	NCTM Annual Meeting & Exposition, Boston	
January 2015	EduCon 2.7, The Science Leadership Academy, Philadelphia		

REFERENCES

Dan Margalit, Professor, Georgia Tech
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Josephine Yu, Assistant Professor, Georgia Tech
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