Emily Stark

Technion - Israel Institute of Technology
Department of Mathematics
Haifa, Israel

Education

Ph.D. in Mathematics, Tufts University	2015
Advisor: Genevieve Walsh	
M.S. in Mathematics, Tufts University	2011
B.A. in Mathematics, Pomona College	2009
Budapest Semesters in Mathematics	Fall 2007

Employment

Postdoctoral fellow, Technion - Israel Institute of Technology	2016- present
Postdoctoral fellow, University of Haifa, Department of Mathematics	2015-2016

Research Interests

My research lies in geometric group theory and low-dimensional topology, with a focus on hyperbolic and nonpositive curvature. My interests include quasi-isometric classification and rigidity, notions of commensurability, group boundaries, and surfaces and 3-manifolds.

Awards and Honors

Zuckerman STEM Leadership Fellowship	2017 – 2019
National Science Foundation Graduate Research Fellowship	2009 – 2012
Tufts University Provost Fellowship	2009

Papers

(1) Nonplanar graphs in boundaries of CAT(0) groups. (Joint with K. Schreve.)
arXiv:1807.02439. *Submitted,* (2018).

(2) The visual boundary of hyperbolic free-by-cyclic groups. (Joint with Y. Algom-Kfir and A. Hilion.)
arXiv:1801.04750. *Submitted,* (2018.)

(3) Quasi-isometric groups with no common model geometry. (Joint with D. Woodhouse.)
Journal of the London Mathematical Society. To appear, (2018).

(4) Detecting a subclass of torsion-generated groups.
Algebraic and Geometric Topology. To appear, (2018).

(5) Surface group amalgams that (don't) act on 3-manifolds. (Joint with C. Hruska and H. Tran.)
American Journal of Mathematics. To appear, (2018).

(6) Topological rigidity fails for quotients of the Davis complex.
Proceeding of the American Mathematical Society, To appear, (2017).

(7) Commensurability for certain right-angled Coxeter groups and geometric amalgams of free groups. (Joint with P. Dani and A. Thomas.) *Groups, Geometry, and Dynamics.* To appear, (2017).

(8) Abstract commensurability and quasi-isometry classification of hyperbolic surface group amalgams.
Geometriae Dedicata, (2017) 186(1), 39-74.

(9) Intrinsically linked graphs in $\mathbb{R}P^3$. (Joint with J. Federman, J. Foisy, K. McNamara.)
Involve Journal of Mathematics. (2017) Vol.10-1, $1-20$.

(10) Intrinsically linked graphs in projective space. (Joint with J. Bustamante, J. Federman, J. Foisy, K. Kozai, K. Matthews, K. McNamara, K. Trickey.) *Algebraic and Geometric Topology,* **3** (2009) No. 9, 1255 – 1274.

Invited Conference Talks

Summer Conference on Topology and its Applications, WKU (Semi-plenary speaker)	July 2018
Topological and Homological Methods in Group Theory, Bielefeld, Germany	April 2018
Structure of 3-manifold groups, CIRM, Luminy, France	February 2018
Israeli Mathematical Union Annual Meeting, Akko, Israel	May 2017
Spring Topology and Dynamics Conference, Jersey City	March 2017
Non-Positive Curvature in Action, Cambridge, England	January 2017
Israeli Mathematical Union Annual Meeting, Ein Bokek, Israel	June 2016
Topological Methods in Group Theory, Ohio State University	June 2014
Workshop in Geometric Topology, University of Wisconsin-Milwaukee	June 2014
AWM Research Symposium poster session, Santa Clara, CA	March 2013
Binghamton University Graduate Conference in Algebra and Topology	November 2012
Southern California Student Conference on Spatial Graphs, Caltech	April 2009
U. Nebraska Conference for Undergraduate Women in Mathematics	January 2009
Joint Mathematical Meetings undergraduate poster session	January 2009

Invited Seminar Talks and Colloquia

University at Albany Algebra/Topology Seminar	October 2018
Cornell University Topology Seminar	October 2018
University of California Santa Barbara Topology Seminar	June 2018
University of Wisconsin-Milwaukee Topology Seminar	April 2018
CUNY Geometry and Topology Seminar	April 2018
University of Haifa Geometry and Topology Seminar	December 2017
University of Michigan Topology Seminar	October 2017
Tufts University Geometric Group Theory and Topology Seminar	October 2017
Technion University Geometry and Topology Seminar	January 2017
MSRI Seminar, Berkeley, CA	October 2016
Tufts University Geometric Group Theory and Topology Seminar	September 2016
Technion University Geometry and Topology Seminar	December 2015
University of Haifa Geometry and Topology Seminar	November 2015
CCNY Mathematics Colloquium	October 2015
University of Illinois-Chicago Geometry, Topology, and Dynamics Seminar	April 2015
University of Wisconsin-Milwaukee Topology Seminar	April 2015
Brandeis University Topology Seminar	April 2015
Louisiana State University Topology Seminar	February 2015
Bowdoin College Mathematics Colloquium	December 2014
CUNY Geometry and Topology Seminar	November 2014
Tufts University Geometric Group Theory and Topology Seminar	February 2014
Claremont Colleges Topology Seminar	October 2008

Teaching experience

Summer Projects in Mathematics, Technion — September 2018

Co-directed a project on geometric group theory for undergraduates and masters students

Summer@ICERM, Brown University — Summer 2015

Research experience for undergraduates

Mentor to research groups in applied topology and dynamics

Tufts University - Graduate student teaching assistant — 2012-2015

Primary Instructor:

Applied Calculus II (Spring 2014)

Applied Calculus II (Fall 2013)

Calculus II (Summer 2013)

Applied Calculus II (Spring 2013)

Introduction to Calculus (Fall 2012)

Teaching Assistant:

Math of Social Choice (Spring 2015)

Discrete Math (Fall 2014)

Teaching Assistant, CIRM, Luminy, France — January 2014

Hyperbolic groups mini-course

Teaching Mentor & Grader, Pomona College — 2008-2009

Calculus III, Real Analysis I, Galois Theory

Service

Organizer and founder, Tufts University Graduate Student Seminar — 2010-2015

Co-organizer, MRC Special Session in Geometric Group Theory,
Joint Mathematical Meetings, Baltimore, MD — January 2014

Outreach

Student lunch seminar speaker, Technion — November 2018

Math/Stats club speaker, Mount Holyoke College — October 2018

Math Circles for elementary and secondary students — 2012 - 2015

Instructor, Harvard Math Circle (Fall 2013, Spring 2014, Fall 2014, Spring 2015)

Lead organizer, Tufts Math Circle (Fall 2013)

Instructor, Tufts Math Circle (Spring 2012, Fall 2012, Spring 2013, Fall 2013)

Guest Lecturer, Northeastern Math Circle (Spring 2013)

Volunteer tutor, Community Learning Center, Cambridge, MA — Jan. 2011 - Jan. 2012

Weekly one-on-one sessions with an adult learner

Volunteer instructor, Museum of Science, Boston — Oct. 2009 - Jan. 2011

Facilitated weekly activities in the Discovery Center

Selected programs attended

Mathematical Research Communities: Geometric Group Theory, Snowbird, UT — June 2013

PCMI-IAS Graduate Summer School in Geometric Group Theory, Park City, UT — July 2012

University of Nebraska IMMERSE Summer Program — June-July 2009

Citizenship: United States of America

October 8, 2018