

THOMAS MCCONVILLE

Massachusetts Institute of Technology
Department of Mathematics

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Research Interests. Algebraic, geometric, and topological combinatorics

Employment. 2015-2018 Applied Mathematics Instructor, Massachusetts Institute of Technology
Fall 2017 Research Member, Mathematical Sciences Research Institute

Education. 2009-2015 **University of Minnesota**, Minneapolis, MN
Ph.D. in Mathematics, 2015
Advisor: Pavlo Pylyavskyy
Dissertation: Combinatorics of biclosed sets

2005-2009 **St. Olaf College**, Northfield, MN
B.A., Mathematics 2009

Papers.

- *Minimal length maximal green sequences* with Alexander Garver and Khrystyna Serhiyenko. *Advances in Applied Mathematics* (to appear).
- *Lattice properties of oriented exchange graphs and torsion classes* with Alexander Garver. *Algebras and Representation Theory* (to appear).
- *Homotopy type of intervals of the second Higher Bruhat orders.* *Order* (to appear).
- *Lattice structure of Grid-Tamari orders.* *Journal of Combinatorial Theory: Series A.* (2017)
- *Sorting via chip-firing* with Sam Hopkins and James Propp. *Electronic Journal of Combinatorics.* (2017)
- *Crosscut-simplicial lattices.* *Order* (2016). doi:10.1007/s11083-016-9409-9

Preprints.

- *Root system chip-firing I: interval firing* with Pavel Galashin, Sam Hopkins, and Alexander Postnikov. preprint, 2017; arXiv:1708.04850
- *Root system chip-firing II: central firing* with Pavel Galashin, Sam Hopkins, and Alexander Postnikov. preprint, 2017; arXiv:1708.04849
- *Enumerative properties of grid-associahedra* with Alexander Garver. preprint, 2017; arXiv:1705.04901
- *Oriented flip graphs and noncrossing tree partitions* with Alexander Garver. preprint, 2016; arXiv:1604.06009
- *Biclosed sets in real hyperplane arrangements.* preprint, 2014; arXiv:1411.1305

Talks.

- American Mathematical Society special session on Dynamical Algebraic Combinatorics at the Joint Mathematics Meetings, San Diego, California, January 2018
- University of California, Berkeley (Combinatorics seminar), November 2017
- École Polytechnique (Combinatorics seminar), November 2017
- Workshop on cluster algebras and representation theory, Paris, November 2017
- Mathematical Sciences Research Institute (Postdoc seminar), September 2017
- American Mathematical Society special session on cluster algebras in representation theory and combinatorics, New York, New York, May 2017
- American Mathematical Society special session on applications of partially ordered sets in algebraic, topological, and enumerative combinatorics at the Joint Mathematics Meetings, Atlanta, Georgia, January 2017
- University of Connecticut (Cluster algebras seminar), October 2016
- Brandeis University (Combinatorics seminar), October 2016
- Laboratoire de combinatoire et d'informatique mathématique de l'UQAM (Algebraic combinatorics seminar), May 2016
- American Mathematical Society special session on algebraic and geometric combinatorics, Fargo, North Dakota, April 2016
- Smith College (Colloquium), March 2016

- Canadian Mathematical Society special session on algebraic combinatorics, Montreal, Canada, December 2015
- University of Michigan (Combinatorics seminar), October 2015
- Massachusetts Institute of Technology (Combinatorics seminar), September 2015
- Massachusetts Institute of Technology (Combinatorics seminar), April 2015
- North Dakota State University (Colloquium), March 2015
- Cornell University (Discrete Geometry and Combinatorics seminar), November 2014
- North Carolina State University (Algebra and Combinatorics seminar), November 2014
- Whitman College (Colloquium), November 2013

Teaching Experience. **Massachusetts Institute of Technology** 2015-2018

Applied math instructor

Courses	18.204 Undergraduate seminar in discrete math (three times), 18.212 Algebraic combinatorics
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University of Minnesota 2009-2015

Recitation instructor

Courses	Math 1372 CSE Calculus II (TA'd twice), Math 2573H Honors Calculus III (TA'd once), Math 3283W Sequences, Series, and Foundations: Writing Intensive (TA'd twice)
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Service.

- Program committee member for the Formal Power Series and Algebraic Combinatorics conference (2018)
- Co-organizer of the AMS Special Session on Algebraic and Enumerative Combinatorics at Bowdoin College, Brunswick, ME (Sept 2016)
- Co-organizer of MIT combinatorics seminar (Fall 2015-)
- Combinatorics Summer REU TA, University of Minnesota (2012, 2013, 2015)
- Organizer of the Student Combinatorics Seminar, University of Minnesota (Fall 2011-Spring 2012)
- Co-organizer of the Graduate Student Combinatorics Conference 2013, University of Minnesota (April 2013)
- Various Math Club talks and Junior Colloquium talks, University of Minnesota
- Participant in "Grad School Night", St. Olaf College