

# Jessica Striker

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## Education

University of Minnesota, Minneapolis, Minnesota	2000-2008
Ph.D. in Mathematics	December 2008
Thesis advisor: Dennis Stanton	
Thesis title: <i>Poset and Polytope Perspectives on Alternating Sign Matrices</i>	
M.S. in Mathematics	2006
Bachelor of Science in Mathematics, minor in Physics	2003

## Research Interests

Algebraic, Enumerative, Geometric, and Bijective Combinatorics, Statistical Physics

## Scholarly Papers

- J. Striker and N. Williams, *Promotion and rowmotion*, preprint (2011), arXiv:1108.1172v2 [math.CO].
- J. Striker, *A direct bijection between descending plane partitions with no special parts and permutation matrices*, *Discrete Mathematics* **311** (2011), no. 21, 2581-2585.
- J. Striker, *A unifying poset perspective on alternating sign matrices, plane partitions, Catalan objects, tournaments, and tableaux*, *Advances in Applied Mathematics* **46** (2011), no. 4, 583-609.
- J. Striker, *The poset perspective on alternating sign matrices*. Formal Power Series and Algebraic Combinatorics (Hagenberg, Austria). *Discrete Mathematics and Theoretical Computer Science, Proceedings Series, AK* (2009), 819-830.
- J. Striker, *The alternating sign matrix polytope*, *Electronic Journal of Combinatorics* **16** (2009), no. 1.

## Honors and awards

<b>AWM Workshop for Graduate Students and Recent PhDs</b> at the Joint Math Meetings	2012
<b>AWM Travel Grant for Women Researchers</b> to present at the FPSAC conference in Austria	2008
<b>Good Teaching Award</b> School of Mathematics, University of Minnesota	2007-2008
<b>Summer Research Fellowship</b> School of Mathematics, University of Minnesota	2006-2008
<b>Teaching Assistantship</b> School of Mathematics, University of Minnesota	2003-2008
<b>Ordway Fellowship</b> University of Minnesota	2003-2004
<b>Research Experience for Undergraduates</b> School of Mathematics, University of Minnesota	2001-2002
<b>National Merit Scholar</b>	1999

## Talks

- AWM Workshop for Graduate Students and Recent PhDs** at the Joint Math Meetings January 2012  
*Promotion and rowmotion*
- AMS 2010 Spring Central Section Meeting** Macalester College, St. Paul, MN April 2010  
*A simple bijection between alternating sign matrices with no -1's and descending plane partitions with no special parts*
- Macalester College** Mathematics Department Seminar November 2009  
*A unifying perspective on alternating sign matrices and other combinatorial objects*
- St. Olaf College** Faculty Research Seminar October 2009  
*A unifying perspective on alternating sign matrices and other combinatorial objects*
- Massachusetts Institute of Technology** Combinatorics Seminar March 2009  
*The poset perspective on alternating sign matrices*
- University of Minnesota** Schubert Calculus Seminar November 2008  
*Pipe dreams, Grothendieck polynomials, and alternating sign matrices*
- University of Minnesota** Combinatorics Seminar September 2008  
*The poset perspective on alternating sign matrices*
- Erwin Schrödinger International Institute for Mathematical Physics in Vienna, Austria** July 2008  
Summer School on Enumerative Combinatorics and Statistical Mechanics  
*The poset perspective on alternating sign matrices*
- University of Minnesota** Jr. Colloquium October 2007  
*The alternating sign matrix polytope*
- The 19<sup>th</sup> International Formal Power Series and Algebraic Combinatorics Conference** July 2007  
Nankai University, Tianjin, China  
*The alternating sign matrix polytope*
- University of Minnesota** Combinatorics Seminar March 2007  
*The alternating sign matrix polytope*

## Poster Presentations

- Mathematical Sciences Research Institute** Lattice Models and Combinatorics Workshop January 2012  
*Promotion and rowmotion*
- Banff International Research Station, Canada** Algebraic Combinatorixx Workshop May 2011  
*Promotion and rowmotion*
- The 21<sup>st</sup> International Formal Power Series and Algebraic Combinatorics Conference** July 2009  
Research Institute for Symbolic Computation (RISC), Hagenberg, Austria  
*The poset perspective on alternating sign matrices*
- Institute for Mathematics and its Applications** Career Options for Women in Math Workshop April 2009  
*The poset perspective on alternating sign matrices*

## Teaching Experience

- Teaching Specialist** University of Minnesota 2011  
*Precalculus II*  
Taught trigonometry along with other calculus-preparatory topics to four discussion sections. Helped the students gain knowledge and skills needed to solve problems and assessed their progress.
- Adjunct Professor** Augsburg College 2010  
*Calculus II*  
Taught integration theory, techniques, and applications at a liberal arts college. Designed assessments and worked in coordination with the lab instructors to facilitate student learning.
- Visiting Assistant Professor** Macalester College 2009  
*Single Variable Calculus*  
Taught multiple sections of calculus at a liberal arts college. Used teaching strategies from the traditional assigning of homework and giving of exams to the unusual strategies of having the students write calculus haikus and attend math research seminars.
- Lecturer** University of Minnesota 2007-2009  
*College Algebra and Probability, Precalculus I and II, Intensive Precalculus.*  
Sole responsibility for teaching course material in a variety of courses, ranging from large lectures to small classes. Wrote syllabus and exams, interacted with students, and directed the teaching assistants.
- Teaching Assistant** University of Minnesota 2001, 2003-2008  
*College Algebra and Probability, Short Calculus, IT Calculus I and II.*  
Taught semiweekly discussion sections for a wide range of math courses. Demonstrated problem solving techniques, answered student questions, and assessed student progress.
- Workshop Leader and Computer Lab Instructor** University of Minnesota 2005-2006  
*IT Linear Algebra and Differential Equations, IT Multivariable Calculus and Vector Analysis.*  
Led discussion sections and computer lab sessions using MATLAB and *Mathematica*.
- Math Advisor** College of Liberal Arts, University of Minnesota Summer 2005  
Assessed student knowledge and goals for placement of students in suitable math courses.
- Private Math Tutor** 2004-2010  
Taught mathematical concepts and problem solving techniques to high school and college students in precalculus, calculus, and combinatorics courses.
- Math/Physics Tutor** Multicultural Center, University of Minnesota 2001-2003  
Provided individual tutoring to multicultural students in a variety of math, physics, and statistics courses.
- Math Lab Instructor** Mathematics Department, Wheaton College 2000  
Ran a weekly problem solving session for calculus students followed by a quiz.

## Conferences and Workshops Attended

<b>Lattice Models and Combinatorics Workshop</b>	Mathematical Sciences Research Institute	January 2012
<b>Connections for Women: Discrete Lattice Models in Mathematics, Physics, and Computing</b>	Mathematical Sciences Research Institute, Berkeley, CA	January 2012
<b>AWM Workshop for Graduate Students and Recent PhDs</b>	at the Joint Math Meetings	January 2012
<b>Enumerative and Algebraic Combinatorics Special Session</b>	at the Joint Math Meetings	January 2012
<b>Algebraic Combinatorixx Workshop</b>	Banff International Research Station, Canada	May 2011
<b>q-Series Conference</b>	Georgia State University, Statesboro, GA	March 2011
<b>The 22<sup>nd</sup> International Formal Power Series and Algebraic Combinatorics Conference</b>	San Francisco State University, San Francisco, CA	August 2010
<b>AMS Spring Central Section Meeting</b>	Macalester College, St. Paul, MN	April 2010
<b>The 21<sup>st</sup> International Formal Power Series and Algebraic Combinatorics Conference</b>	Research Institute for Symbolic Computation (RISC), Hagenberg, Austria	July 2009
<b>MAA Spring North Central Section Meeting</b>	Hamline University, St. Paul, MN	April 2009
<b>Career Options for Women in Math Workshop</b>	Institute for Mathematics and its Applications (IMA), Minneapolis, MN	April 2009
<b>Summer School on Enumerative Combinatorics and Statistical Mechanics</b>	Erwin Schrödinger International Institute for Mathematical Physics, Vienna, Austria	July 2008
<b>Oberwolfach Seminar: Enumerative Combinatorics and Integrable Models of Statistical Mechanics</b>	MFO, Oberwolfach, Germany	November 2007
<b>The 19<sup>th</sup> International Formal Power Series and Algebraic Combinatorics Conference</b>	Nankai University, Tianjin, China	July 2007
<b>Graduate Student Combinatorics Conference</b>	University of Minnesota	April 2005

## Service and Professional Development

<b>Referee for <i>Electronic Journal of Combinatorics</i></b>		September 2011
<b>Referee for <i>Linear Algebra and its Applications</i></b>		May 2011
<b>Augsburg College New Faculty Seminar</b>		Fall 2010
<b>Augsburg College New Faculty Orientation</b>		August 2010
<b>Macalester College New Faculty Orientation</b>		August 2009
<b>Macalester College Moodle and Syllabus Writing Workshops</b>		August 2009
<b>Career Options for Women in Math Workshop</b>	IMA	April 2009

## References

<b>Dennis Stanton</b>	Mathematics Department, University of Minnesota	stanton@math.umn.edu
<b>Vic Reiner</b>	Mathematics Department, University of Minnesota	reiner@math.umn.edu
<b>Karen Saxe</b>	Macalester College, St. Paul, MN (teaching reference)	saxe@macalester.edu