

Department of Mathematics  
Loyola Marymount University  
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## EDUCATION

**Michigan State University**, East Lansing, MI  
Ph.D., Mathematics, May 2015  
Advisor: Bruce Sagan  
Dissertation: Quotient Posets and the Characteristic Polynomial

**Illinois State University**, Normal, IL  
M.S., Biomathematics 2009  
Masters Thesis: Genetic Algorithms with Shrinking Population Size  
B.S., Mathematics 2007

## ACADEMIC POSITIONS

**Loyola Marymount University**, Department of Mathematics, Los Angeles, CA  
August 2018–Present  
Assistant Professor

**Wake Forest University**, Department of Mathematics, Winston-Salem, NC  
July 2015–July 2018  
Teacher-Scholar Postdoctoral Fellow

## PAPERS AND PREPRINTS

1. Factoring the Characteristic Polynomial of a Lattice (with B. Sagan) *J. Combin. Ser. A*, **136**, 39–63 (2015)
2. Combinatorial Hopf Algebras of Simplicial Complexes (with C. Benedetti and J. Machacek) *SIAM J. Discrete Math.*, **30**, 3 1737–1757 (2016)
3. Applications of Quotient Posets *Discrete Math.* **340**, 4, 800–810 (2017)
4. Dual Immaculate Quasisymmetric Functions Expand Positively into Young Quasisymmetric Schur Functions (with E. Allen and S. Mason) *J. Combin. Ser. A*, **157**, 70–108 (2018)
5. Increasing Spanning Forests in Graphs and Simplicial Complexes (with J. Martin and B. Sagan), *European J. Combin.*, **76**, 178–198 (2019)
6. The Whitney Duals of a Graded Poset (with R. S. González D'León), submitted

## SELECTED TALKS

### 2019

Southern California Discrete Mathematics Symposium, Claremont McKenna College, May 2019  
Algebra, Number Theory, and Combinatorics Seminar at University of North Carolina Greensboro, March 2019  
Combinatorics seminar at University of Southern California, February 2019

**2018**

MAA Session on Arts and Mathematics: The Interface, Joint Mathematics Meeting, January 2018

SIAM Conference on Discrete Mathematics, Minisymposium on the Combinatorics of Partially Ordered Sets, June 2018

SIAM Conference on Discrete Mathematics, Minisymposium on Graph Polynomials, June 2018

Combinatorics seminar at University of California San Diego, October 2018

**2017**

Applied Algebra Seminar at York University, November 2017

Algebra, Number Theory, and Combinatorics Seminar at University of North Carolina Greensboro, October 2017

Algebra and Combinatorics seminar at North Carolina State University, October 2017

Special Session on Polynomials in enumerative, algebraic, and geometric combinatorics, AMS Spring Sectional Meeting, Buffalo, NY, September 2017

Formal Power Series and Algebraic Combinatorics 2017, London, England, July 2017

MAA Session on Discrete Mathematics in the Undergraduate Curriculum - Ideas and Innovations for Teaching, Joint Mathematics Meeting, January 2017

**2016**

Formal Power Series and Algebraic Combinatorics 2016, Vancouver, British Columbia, July 2016

Meeting on Algebraic Geometry for Applications, Clemson University, April 2016

Special Session on The Combinatorics of Symmetric Functions, Southeastern Spring AMS Sectional Meeting, March 2016

**2015**

Discrete CATS seminar at University of Kentucky, November 2015

Special Session on Hopf Algebraic Combinatorics, Central Fall AMS Sectional Meeting, October 2015

Special Session on Enumerative Combinatorics and Graph Theoretic Applications, Central Fall AMS Sectional Meeting, October 2015

Central Michigan University Algebra and Combinatorics Seminar, April 2015

Graduate Student Combinatorics Conference 2015, University of Kentucky, March 2015

Special Session on Algebraic Combinatorics, Central Spring AMS Sectional Meeting, March 2015

Colloquium, Albion College, February 2015

Algebra and Combinatorics Seminar, Loyola University Chicago, February 2015

Special Session on Enumerative Combinatorics, Joint Mathematics Meeting, January 2015

**2014**

University of Kansas Combinatorics Seminar, October 2014

York University Applied Algebra Seminar, September 2014

Tenth Annual Graduate Student Combinatorics Conference, Auburn University, April 2014

Bijjective and Algebraic Combinatorics: In honor of Bruce Sagan's 60<sup>th</sup> birthday, University of Florida, March 2014

First Lake Michigan Workshop on Combinatorics and Graph Theory, Western Michigan University,  
March 2014

## **TEACHING EXPERIENCE**

**Loyola Marymount University** 2018–Present  
Introduction to Methods of Proof  
Linear Algebra

**Wake Forest University** 2015–2018  
Calculus II  
Discrete Mathematics  
Elementary Probability and Statistics  
Graph Theory  
Introduction to Combinatorics  
Special Topics in Combinatorics: Generating Functions

**Michigan State University** 2009–2015  
Applied Calculus  
Applied Calculus II  
Calculus I  
Elementary Mathematics for Teachers I  
Elementary Mathematics for Teachers II  
Multivariable Calculus  
Foundations of Higher Mathematics (Co-taught with Dr. Sharon Senk)

## **SERVICE**

Loyola Marymount Mathematics Club Faculty Advisor  
Presenter at STEM @ Wake, a program for high school students interested in STEM fields  
Organizer of Wake Forest University Combinatorics Seminar  
Member of Undergraduate Curriculum Committee at Wake Forest University  
Volunteer test grader for Mathcounts competition at Wake Forest University  
MSU Mathematics Learning Center Supervisor  
Organizer of Student Combinatorics Seminar at Michigan State University