

Laura Escobar

Department of Mathematics
University of Illinois at Urbana-Champaign
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EMPLOYMENT

J.L. Doob Research Assistant Professor, U. of Illinois at Urbana-Champaign, USA 2015 - 2018
Supervisor: Alexander Yong

Postdoctoral Fellow, The Fields Institute thematic program in Combinatorial Algebraic Geometry, Canada Fall 2016

Einstein Postdoctoral Researcher, TU Berlin, Germany Summer 2015
Supervisor: Bernd Sturmfels

EDUCATION

Ph.D. in Mathematics, Cornell University, 2015
Advisor: Allen Knutson

Master of Arts in Mathematics, San Francisco State University, 2010
Advisor: Federico Ardila

Bachelor of Mathematics with a Minor in Japanese Language and Culture, 2008
Universidad de los Andes

RESEARCH INTERESTS

- Combinatorics
- Algebraic Geometry

PUBLICATIONS

- [1] Laura Escobar and Alexander Yong. Newton polytopes and symmetric Grothendieck polynomials. *Accepted to Comptes Rendus Mathématique*. arXiv:1705.07876.
- [2] Laura Escobar and Allen Knutson. The multidegree of the multi-image variety, *submitted*. arXiv:1701.03852.
- [3] Laura Escobar, Oliver Pechenik, Bridget E. Tenner, and Alexander Yong. Rhombic tilings and Bott-Samelson varieties. *Accepted to Proc. Amer. Math. Soc.*. arXiv:1605.05613.
- [4] Laura Escobar and Karola Mészáros. Toric matrix Schubert varieties and their polytopes. *Proc. Amer. Math. Soc.*, 144(12):5081–5096, 2016.
- [5] Laura Escobar and Karola Mészáros. Subword complexes via triangulations of root polytopes, *submitted*. arXiv:1502.03997.
- [6] Laura Escobar. Brick manifolds and toric varieties of brick polytopes. *Electron. J. Combin.*, 23(2):Paper 2.25, 18, 2016.
- [7] Laura Escobar. Bott-Samelson varieties, subword complexes and brick polytopes. In *26th International Conference on Formal Power Series and Algebraic Combinatorics (FPSAC 2014)*, Discrete Math. Theor. Comput. Sci. Proc., AT, pages 863–874. Assoc. Discrete Math. Theor. Comput. Sci., Nancy, 2014.
- [8] Laura Escobar. Star¹-convex functions on tropical linear spaces of complete graphs. In *24th International Conference on Formal Power Series and Algebraic Combinatorics (FPSAC 2012)*, Discrete Math. Theor. Comput. Sci. Proc., AR, pages 709–720. Assoc. Discrete Math. Theor. Comput. Sci., Nancy, 2012.

GRANTS

- AMS Simons Travel Grant, 2017
- AWM Mentoring Travel Grant, 2017.

INVITED TALKS

- *Four-Lecture Series at Osaka City University Advanced Mathematical Institute*, June 2017; Osaka, Japan.
- *University of Washington Combinatorics Seminar*, April 2017; Seattle, WA.
- *University of Minnesota Combinatorics Seminar*, March 2017; Minneapolis, MN.
- *University of Minnesota Student Combinatorics Seminar*, March 2017; Minneapolis, MN.
- *University of Miami Combinatorics Seminar*, March 2017; Miami, FL.
- *University of Kentucky Discrete CATS Seminar*, February 2017; Lexington, KY.
- *University of Toronto Geometric Representation Theory Seminar*, October 2016; Toronto, ON.
- *The Fields Institute Seminar*, August 2016, Toronto, ON.
- *UIUC Algebraic Geometry Seminar*, May 2016; Urbana-Champaign, IL.
- *Ohio State Algebraic Geometry Seminar*, October 2015; Columbus, OH.
- *University of Michigan Commutative Algebra Seminar*, December 2014; Ann Arbor, MI.
- *UC Berkeley Commutative Algebra and Algebraic Geometry Seminar*, February 2014; Berkeley, CA.
- *York University Applied Algebra Seminar*, October 2013; Toronto, ON.
- *Cornell University Computational and Commutative Algebra Seminar*, November 2012; Ithaca, NY.
- *York University Applied Algebra Seminar*, November 2012; Toronto, ON.
- *San Francisco State University Graduate Student Seminar*, Fall 2009; San Francisco, CA.

CONFERENCE PRESENTATIONS

- *MSRI Workshop on Geometric and topological combinatorics: Modern techniques and methods*, October 2017; Berkeley, CA.
- *AMS Special Session on Polynomials in Enumerative, Algebraic, and Geometric Combinatorics*, September 2017; Buffalo, NY.
- *AMS Special Session on Algebraic Combinatorics of Flag Varieties*, September 2017; Denton, TX.
- *AMS Special Session on Geometric Combinatorics and Combinatorial Commutative Algebra*, September 2017; Denton, TX.
- *SIAM Conference on Applied Algebraic Geometry: Minisymposium on Algebraic Vision*, August 2017; Atlanta, GA.
- *AMS Special Session on Combinatorial and Computational Commutative Algebra and Algebraic Geometry*, April 2017; Pullman, WA.
- *AMS Special Session on Algebraic and Enumerative Combinatorics with Applications*, April 2017; Bloomington, IN.
- *CMS Winter Meeting Session on Combinatorial Algebraic Geometry*, December 2016; Niagara Falls, ON.
- *CMS Winter Meeting Session on Equivariant Geometry and Topology*, December 2016; Niagara Falls, ON.
- *Formal Power Series and Algebraic Combinatorics Poster Session*, July 2016; Vancouver, BC.
- *AMS Special Session on Combinatorial Ideals and Applications*, April 2016; Fargo, ND.
- *AMS Special Session on Combinatorial and Computational Commutative Algebra and Algebraic Geometry*, April 2016; Salt Lake City, UT.
- *AWM Workshop at JMM 2016*, January 2016; Seattle, WA.
- *ALGECOM*, October 2015; Ann Arbor, MI.
- *AMS Special Session on Algebraic Combinatorics*, March 2015; East Lansing, MI.

- *AMS Special Session on Cluster Algebras*, January 2015; San Antonio, TX.
- *AMS Special Session on Generalized Catalan Algebraic Combinatorics*, October 2014; Halifax, NS.
- *Formal Power Series and Algebraic Combinatorics Poster Session*, June 2014; Chicago, IL.
- *Encuentro Colombiano de Combinatoria*, June 2014; Bogota, Colombia.
- *AWM Research Symposium, Special Session: Algebraic Combinatorics*, March 2013; Santa Clara, CA.
- *Formal Power Series and Algebraic Combinatorics Poster Session*, July 2012; Nagoya, Japan.
- *Kyoto University Workshop on Convex Polytopes*, July 2012; Kyoto, Japan.
- *Encuentro Colombiano de Combinatoria*, June 2012; Bogota, Colombia.

TEACHING EXPERIENCE

Instructor, University of Illinois at Urbana-Champaign

- Linear Programming: Spring 2017
- Introduction to Combinatorics: Spring 2016
- Introduction to Discrete Mathematics: Fall 2015

Instructor, Cornell University

- Calculus I: Fall 2013, Fall 2011

Teaching Assistant, Cornell University

- Graduate Algebra: Fall 2014, 2012
- Applicable Algebra: Spring 2013, 2015
- Algebra: Spring 2012, 2011
- Calculus I for Engineers: Fall 2010

Instructor, San Francisco State University

- Algebra II: Fall 2008 - Spring 2010

Teaching Assistant, San Francisco State University

- Exploration and Proof: Spring 2010
- Calculus I: Fall 2009
- Modern Algebra II: Fall 2008

Instructor, Universidad de los Andes

- Calculus I: Spring 2008

Teaching Assistant, Universidad de los Andes

- Calculus II: Fall 2007

PROFESSIONAL SERVICE AND OUTREACH

Member of the organizing committee of Encuentro Colombiano de Combinatoria , Colombia	2012, 2016, 2018
Co-organizer of the AMS Special Session on Algebra and Geometry , Joint Math Meetings, San Diego, CA, USA	January 2018
Co-organizer of the Algebra, Geometry and Combinatorics Seminar , University of Illinois at Urbana-Champaign, USA	2017-Current
Founder and Co-organizer of the Doob Colloquium , University of Illinois at Urbana-Champaign, USA	2015-Current
Co-organizer of the Algebra, Geometry and Combinatorics Day (AlGeCom) , University of Illinois at Urbana-Champaign, USA	Spring 2017
Co-organizer of the Special Seminar on NonLinear Algebra , TU Berlin, Germany	June 2015

Organizer of the Center for Talented Youth Family Saturday Program, Cornell University, USA	March 2015
Designer and Leader of the Center for Talented Youth Family Saturday Program “Polytopes” , Cornell University, USA	March 2015
Workshop assistant for Louis Billera’s course “Matroids, geometric lattices, and arrangements of hyperplanes” , Encuentro Colombiano de Combinatoria, Colombia	Summer 2014
Designer and Leader of the Module “Flat Objects and Optimization” of the Math Explorers Club , Cornell University, USA	Fall 2012
TA Trainer for Incoming Graduate Students , Cornell University, USA	2012-2014
Presenter of Center for Talented Youth Family Saturday Program “Tilings” Workshop , Cornell University, USA	October 2011
Co-organizer of the Toric Varieties Learning Seminar , Cornell University, USA	Fall 2011
Organizer of Professors’ Seminar , San Francisco State University, USA	October 2011

SEMINAR LECTURES

- **Tropical Geometry Seminar**, University of California Berkeley; Berkeley, CA
 - *Tropical Grassmannian*, March 2014
- **Olivetti Seminar**, Cornell University; Ithaca, NY
 - *A history of the associahedron*, March 2015
 - *Schubert varieties*, March 2013
 - *Tropical linear spaces*, March, 2011
- **Workshop on Quantum/Affine Schubert Calculus**, Eugene, OR
 - *k-double Schur functions*, August 2013
- **Berstein Seminar**, Cornell University; Ithaca, NY
 - *Toric varieties*, March 2012
 - *Equivariant cohomology of toric varieties*, March 2012
- **Discrete Geometry and Combinatorics Seminar**, Cornell University; Ithaca, New York
 - *Symmetric functions II*, October 2011
- **Toric Varieties Learning Seminar**, Cornell University; Ithaca, New York
 - *Singularities and compactness of toric varieties*, October 2011

AWARDS AND HONORS

- **Teacher Ranked as Excellent**, University of Illinois at Urbana-Champaign, Fall 2015
- **Robert John Batting Graduate Prize**, for Excellence and Promise in Mathematics, Cornell University, 2014.
- **Department of Mathematics Teaching Award**, Cornell University, 2014.
- **Graduate Student Award for Distinguished Achievement**, San Francisco State University, 2010.
- **SFSU Alumni Association Graduate Scholarship**, San Francisco State University, Spring 2009.
- **Provost Scholarship**, San Francisco State University, 2008-2009.
- **Sylow Algebra Prize**, San Francisco State University, 2008-2009.
- **Lawrence Chang Memorial Scholarship Award**, San Francisco State University, Fall 2008, Fall 2009.
- **Beca Uniandinos**, Fall 2007, Spring 2008.

References

Alexander Yong, Professor of Mathematics, UIUC `ayong at math.uiuc.edu`

Allen Knutson, Professor of Mathematics, Cornell University `allenk at math.cornell.edu`

Federico Ardila, Professor of Mathematics, SFSU `federico at math.sfsu.edu`