

Research Interests

combinatorics, nonlinear algebra, commutative algebra, graph theory

Education

2019– **University of California, Berkeley**, *Ph.D. in Mathematics (expected)*.

Class of 2019 **Wesleyan University**, *B.A. in Mathematics (High Honors)*.

Honors Thesis: “Combinatorial Nullstellensatz: Various Proofs, Extensions and Applications”

Advised by Karen L. Collins

Academic & Research Experience

Jun–Jul **Max Planck Institute for Mathematics in the Sciences**, *Visitor*.

2019 Leipzig, Germany

Supervised by Bernd Sturmfels

Project: *Logarithmic Voronoi Diagrams* (ongoing collaboration with Alexander Heaton)

Jun–Aug **Twin Cities REU, NSF Student Researcher**.

2018 University of Minnesota, MN

Supervised by Benjamin Brubaker and Pavlo Pylyavskyy

Projects: *Ice Models and Classical Groups* and *Resistor Networks in a Punctured Disk*

May–Aug **DIMACS/DIMATIA REU, NSF Student Researcher**.

2017 Rutgers University, NJ and Charles University, the Czech Republic

Supervised by James Abello

Project: *Visibility Graphs of Staircase Polygons*

Sep 2016– **Treespace REU, NSF Student Researcher**.

Feb 2017 Lehman College (CUNY), NY

Mentored by Katherine St. John and Megan Owen

Project: *Recovering the Closure of Rooted Triples*

Teaching

Fall 2018 **Probability Theory**, *Teaching Assistant*.

Instructor: Han Li (Wesleyan University)

Spring 2018 **Graph Theory**, *Teaching Assistant*.

Instructor: Karen L. Collins (Wesleyan University)

Fall 2017 **Probability Theory**, *Teaching Assistant*.

Instructor: Felipe Ramírez (Wesleyan University)

Talks & Lectures

Apr 2020 *Logarithmic Voronoi Cells*

Nonlinear Algebra Seminar Online

Oct 2019 *Ice Models for Type A* (two talks)

Berkeley Combinatorics Reading Seminar

Jun 2019 *Linear Spaces and Grassmannians*

Max Planck Institute for Mathematics in the Sciences (Leipzig, Germany)

Jan 2019 *Combinatorial Nullstellensatz: Various Proofs, Extensions and Applications*

Wesleyan University Thesis Defense

Apr 2018 *Visibility Graphs of Staircase Polygons*
Berkeley Undergraduate Number Theory Conference

Awards & Fellowships

- 2020 NSF Graduate Research Fellowship
- 2019 Chancellor's Graduate Fellowship (UC Berkeley)
Phi Beta Kappa (Connecticut Gamma Chapter)
Rice Prize (Wesleyan University)
awarded to a senior for excellence in mathematics
- 2018 Rae Shortt Prize (Wesleyan University)
awarded to a junior for excellence in mathematics

Workshops & Conferences Attended

- 2019 Workshop on Classical and Quantum Integrable Systems at Euler International Mathematical Institute in Saint Petersburg, Russia;
Summer School on Randomness and Learning in Non-Linear Algebra at MPI Leipzig;
Workshop on Applied Algebra at TU Braunschweig, Germany;
Discrete Math Day at U Mass, Amherst;
- 2017 GROW Conference at Northwestern University;
WIMIN (Women in Math) at Smith College;
DIMATIA Program at Charles University, the Czech Republic;
Midsummer Combinatorial Workshop at Charles University, the Czech Republic;
SAMSI Optimization Workshop.

Languages

Programming C++, \LaTeX , OCaml, SML, HTML, Python
Spoken Russian (native), English (fluent), Hebrew (beginner)

Publications and Preprints

- [1] with Alex Heaton and Sascha Timme. *Computing a Logarithmic Voronoi Cell*. Published on the [HomotopyContinuation.jl](#) website, 2019.
- [2] with Brian Burks, Sunita Chepuri, and Patricia Commins. *Recovering Conductances of Resistor Networks in a Punctured Disk*. Submitted, 2019. arXiv: [1812.01517](#)
- [3] with Patricia Commins, Alexandra Embry, Sylvia Frank, Yutong Li, and Alexander Vetter. *Deformations of the Weyl Character Formula for $SO(2n+1, \mathbb{C})$ via Ice Models*. In preparation, 2018. arXiv: [1811.11879](#)
- [4] with Kayla Cummings and Edgar Jaramillo Rodriguez. *Growth of Meandric Numbers*. Transcription in DIMACS-DIMATIA REU booklet (pp. 33-36), 2017.