Yulia Alexandr

Wesleyan University
✉ *yalexandr@wesleyan.edu*

Research Interests

graph theory, combinatorics, commutative algebra

Education

2019– **University of California, Berkeley**, *Chancellor's Doctorate Fellow (Mathematics).*
Berkeley, CA

Class of 2019 **Wesleyan University**, *Bachelor of Arts (High Honors in Mathematics).*
Middletown, CT
Honors Thesis: "Combinatorial Nullstellensatz: Various Proofs, Extensions and Applications"
Advised by Karen L. Collins

Academic & Research Experience

Jun–Jul 2019 **Max Planck Institute for Mathematics in the Sciences**, *Visitor.*
Leipzig, Germany
Supervised by Bernd Sturmfels
Project: *Logarithmic Voronoi Diagrams* (ongoing collaboration with Alexander Heaton)

Jan–May 2019 **Wesleyan University**, *NSF Research Fellow.*
Middletown, CT
Supervised by Cameron Donnay Hill
Project: *On 3-DAP of Combinatorial Lascar Expansions*

Jun–Aug 2018 **Twin Cities REU**, *NSF Student Researcher.*
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 2017 **DIMACS/DIMATIA REU**, *NSF Student Researcher.*
Rutgers University, NJ and Charles University, the Czech Republic
Supervised by James Abello
Project: *Visibility Graphs of Staircase Polygons*

Sep 2016–Feb 2017 **Treespace REU**, *NSF Student Researcher.*
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.*
Wesleyan University, CT
Instructor: Han Li

Spring 2018 **Graph Theory**, *Teaching Assistant.*
Wesleyan University, CT
Instructor: Karen L. Collins

Fall 2017 **Probability Theory**, *Teaching Assistant.*
Wesleyan University, CT
Instructor: Felipe Ramírez

Talks & Lectures

June 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

2019 Chancellor's Graduate Fellowship
UC Berkeley, CA

Phi Beta Kappa
Connecticut Gamma Chapter

Rice Prize (awarded to a senior for excellence in mathematics)
Wesleyan University, CT

2018 Rae Shortt Prize (awarded to a junior for excellence in mathematics)
Wesleyan University, CT

Workshops & Conferences Attended

2019 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 Brian Burks, Sunita Chepuri, and Patricia Commins. *Recovering Conductances of Resistor Networks in a Punctured Disk.* Submitted, 2019. arXiv: 1812.01517

[2] 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

[3] with Kayla Cummings and Edgar Jaramillo Rodriguez. *Growth of Meandric Numbers.* Transcription in DIMACS-DIMATIA REU booklet (pp. 33-36), 2017.