

## Research Interests

graph theory, combinatorics, commutative algebra

## Education

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

## Research Experience

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

Jun–Aug **Twin Cities REU**, *NSF Student Researcher*.  
2018 University of Minnesota, MN  
Mentored 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  
Mentored 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*.  
Wesleyan University, CT  
Instructor: Han Li ([notes](#))

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

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

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

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## Workshops & Conferences Attended

- 2018 Yale Diversity Preview Days
- 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

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## Languages

- Programming C++,  $\text{\LaTeX}$ , OCaml, SML, HTML, Python
- Spoken Russian (native), English (fluent), Hebrew (beginner)

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## Publications & Preprints

- [1] Yulia Alexandr, Kayla Cummings, and Edgar Jaramillo Rodriguez. “*Growth of Meandric Numbers*”. Transcription in DIMACS-DIMATIA REU booklet, 2017. pp. 33-36. ([link](#)).
- [2] Yulia Alexandr et al. “Deformations of the Weyl Character Formula for  $SO(2n + 1, \mathbb{C})$  via Ice Models”. In: *ArXiv e-prints* (Nov. 2018). arXiv: [1811.11879](#) [[math.CO](#)]. In preparation.
- [3] Yulia Alexandr et al. “Recovering Conductances of Resistor Networks in a Punctured Disk”. In: *ArXiv e-prints* (Dec. 2018). arXiv: [1812.01517](#) [[math.CO](#)]. Submitted.