

## Research Interests

graph theory, combinatorics, commutative algebra

## Education

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

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

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## Awards & Fellowships

- 2019 Chancellor's Graduate Fellowship  
UC Berkeley, CA
- 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.