

Faye Jackson

CONTACT INFORMATION	University of Chicago Department of Mathematics Overall GPA: 4.0	(901)-586-6230 alephnil@uchicago.edu http://math.uchicago.edu/~alephnil Math GPA: 4.0
EDUCATION IN PROGRESS	University of Chicago (UoC) P.h.D in Mathematics.	
EDUCATION	University of Michigan (UM) B.S. in Mathematics. April 2023.	
PUBLICATIONS	Unexpected Biases between Congruence Classes for Parts in k-indivisible Partitions , with Misheel Otgonbayar. Part of the 2022 UVA REU. <i>Journal of Number Theory</i> 248 , 310-342. 2023. https://doi.org/10.1016/j.jnt.2023.01.006 . PDF	
	Distinct Angle Problems and Variants , with Henry L. Fleischmann, Hongyi B. Hu, Steven J. Miller, Eyvindur A. Palsson, Ethan Pesikoff, and Charles Wolf. Part of the 2021 SMALL REU. <i>Discrete and Computational Geometry</i> . 2023. https://doi.org/10.1007/s00454-022-00466-w . PDF .	
	The Bergman Game , with Benjamin Baily, Justine Dell, Irfan Durmić, Henry Fleischmann, Isaac Mijares, Steven J. Miller, Ethan Pesikoff, Luke Reifenberg, Alicia Smith Reina, Yingzi Yang. Part of the 2021 SMALL REU. <i>The Fibonacci Quarterly (Proceedings of the 20th Conference)</i> , 60.5 , 18-38. 2022. PDF	
	Limiting Spectral Distributions of Families of Block Matrix Ensembles , with Teresa Dunn, Henry L. Fleischmann, Simran Khunger, Steven J. Miller, Luke Reifenberg, Alexander Shashkov, and Stephen Willis. Part of the 2021 SMALL REU <i>The PUMP Journal of Undergraduate Research</i> , Volume 5, 122-147. 2022. PDF .	
PREPRINTS	Parts in k-indivisible Partitions Always Display Biases between Residue Classes . Part of the 2022 UVA REU. PDF ArXiv:2305.05753 (2023).	
	Biases among Congruence Classes for Parts in k-regular Partitions , with Misheel Otgonbayar. Part of the 2022 UVA REU. Submitted to the <i>Mathematical Proceedings of the Cambridge Philosophical Society</i> . PDF ArXiv:2207.04352 (2022).	
	Irreducibility Over the Max-Min Semiring , with Benjamin Baily, Justine Dell, Henry L. Fleischmann, Steven J. Miller, Ethan Pesikoff, and Luke Reifenberg. Part of the 2021 SMALL REU	

Submitted to the *Journal of Integer Sequences*
[PDF ArXiv:2111.09786](#) (2021).

Large Sets are Sumsets, with Benjamin Baily, Justine Dell, Sophia Dever, Adam Dionne, Henry L. Fleischmann, Steven J. Miller, Leo Goldmakher, Gal Gross, Ethan Pesikoff, Huy Pham, Luke Reifenberg, and Vidya Venkatesh.
 Part of the 2021 SMALL REU
[Draft](#) (2021).

The Complexity of the Zeckendorf Graph Game, with Benjamin Baily, Justine Dell, Henry Fleischmann, Steven J. Miller, Ethan Pesikoff, and Luke Reifenberg.
 Part of the 2021 SMALL REU.
[Draft](#) (2021).

The Generalized Bergman Game, with Benjamin Baily, Justine Dell, Irfan Durmić, Henry Fleischmann, Isaac Mijares, Steven J. Miller, Ethan Pesikoff, Luke Reifenberg, Alicia Smith Reina, Yingzi Yang.
 Part of the 2021 SMALL REU.
 Submitted to the *Conference Proceedings of CANT 2022*
[PDF ArXiv:2109.00117](#) (2021).

RESEARCH EXPERIENCE

- 2022 UVA REU in Number Theory with **Professor Ken Ono and Dr. William Craig**
- 2021 SMALL REU at Williams College in Number Theory & Probability with **Professor Steven J. Miller**
- 2021 Lab of Geometry at Michigan with **Dr. Joern Zimmerling**

HONORS, AWARDS, AND SCHOLARSHIPS

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|------|--|------------------------|
| 2023 | Stephen Smale Mathematical Sciences Award | University of Michigan |
| 2023 | Mathematics Outstanding Graduating Senior Award | University of Michigan |
| 2023 | NSF Graduate Research Fellowship Awardee | NSF |
| 2023 | Winner of the Alice T. Schafer Mathematics Prize | AWM |
| 2022 | Wirt & Mary Cornwell Prize | University of Michigan |
| 2022 | Goldwater Scholar | Goldwater Foundation |
| 2022 | Runner-up for the Alice T. Schafer Mathematics Prize | AWM |
| 2021 | Mathematics Merit Scholarship | University of Michigan |
| 2021 | Mathematics Alumni Scholarship | University of Michigan |
| 2021 | Frank G. Butorac Scholarship | University of Michigan |
| 2021 | Lincoln R. Siegal Scholarship | University of Michigan |
| 2019 | National Merit Semi-Finalist | NMSC |

TALKS

Biases in Parts among k -regular and k -indivisible Partitions with Misheel Otgonbayar.
 UVA REU (2022), the Michigan Tech Partitions Seminar (2022), University of Michigan Undergraduate Seminar (2022). [Slides](#).

Reducibility of Sets in Generalized Settings with Justine Dell and Henry L. Fleischmann. Advised by Steven J. Miller.
 Young Mathematician's Conference (2021). [Slides](#).

The Complexity of the Zeckendorf Graph Game with Benjamin Baily and Ethan Pesikoff. Advised by Steven J. Miller.
 Young Mathematician's Conference (2021). [Slides](#).

The Bergman Game, with Ethan Pesikoff and Luke Reifenberg. Advised by Steven J. Miller

Young Mathematician's Conference (2021), Joint Math Meetings (2022), Combinatorial and Additive Number Theory (2022), and the International Fibonacci Conference (2022). [Slides](#). [Video](#).

Extensions of Conway's Game of Life, with Erya Du, Dianhui Ke, and Trey Smith. Advised by Benjamin Riley, Carsten Sprunger, Katie Storey, and Jörn Zimmerling. University of Michigan LoG(M) Poster Session 2021. [Poster](#).

You Need a Lemma. Advised by Lukas Scheiwiller. University of Michigan Directed Reading Program (2021). [Slides](#).

The Point at ∞ : What is the degree of $1/z$? Advised by Christopher Zhang. University of Michigan Math Club (2021). [Slides](#).

ATTENDED CONFERENCES	2022	International Fibonacci Conference	University of Sarajevo
	2022	Combinatorial and Additive Number Theory	Virtual
	2022	Joint Math Meetings	Virtual
	2021	Graduate Research Opportunities for Women	University of Illinois
	2021	Young Mathematician's Conference	Virtual

CURRENT COURSEWORK	☐ Analysis I	☐ Topology I
	☐ Algebra I	

PAST COURSEWORK * indicates graduate level coursework
AT UM

☐ Introduction to Dynamics*	☐ Independent Reading: Complex Dynamics
☐ Analysis I (Complex)*	☐ Honors Algebra II (Ring/Galois Theory)
☐ Modular Forms*	☐ Honors Algebra I (Group/Rep. Theory)
☐ Differential Topology*	☐ Honors Multivariate Analysis II
☐ Analysis II (Real)*	☐ Honors Multivariate Analysis I
☐ Algebraic Topology 1*	☐ Intro. to Combinatorics
☐ Intro. to Algebraic Topology*	☐ Honors Math II (Linear Algebra)
☐ Probability Theory*	☐ Honors Math I (Real Analysis)

TEACHING EXPERIENCE	Winter 2023	Course Assistant	396 Honors Multivariate Analysis II	Univ. of Michigan
	Fall 2022	Course Assistant	395 Honors Multivariate Analysis I	Univ. of Michigan
	Fall 2022	Course Assistant	201 Intro. to Proofs	Univ. of Michigan
	Winter 2022	Course Assistant	296 Honors Math II	Univ. of Michigan
	Fall 2021	Course Assistant	295 Honors Math I	Univ. of Michigan
	Fall 2021	Course Assistant	201 Intro. to Proofs	Univ. of Michigan
	Summer 2021	Course Assistant	201 Intro. to Proofs	Ypsilanti Math Corps
	Winter 2021	Course Assistant	297 Intro. to Real Analysis	Univ. of Michigan
	Winter 2021	Course Assistant	201 Intro. to Proofs	Univ. of Michigan
	Fall 2020	Course Assistant	201 Intro. to Proofs	Univ. of Michigan
	Summer 2020	Instructor	201 Intro. to Proofs	Ypsilanti Math Corps

OUTREACH Ypsilanti Math Corps Math Mondays College Assistant, 2019.

Ypsilanti Math Corps Camp 201 Course Assistant, Summer 2021.

	Teaching Assistant for Professor Steven J. Miller's continuing education class to K-12 math teachers through the Teachers as Scholars program. Summer 2021.
	Ypsilanti Math Corps Super Saturdays College Assistant, 2020-2023.
	Ypsilanti Math Corps Camp College Assistant and 201 Instructor, Summer 2020.
	Univ. of Michigan Middle/High School Math Circle Assistant, 2019-2023.
	Ypsilanti Math Corps Camp College Instructor, Summer 2023.
SERVICE	Univ. of Michigan Society of Undergraduate Math Students President, 2022-2023.
	Univ. of Michigan Advanced Undergraduate Seminar Organizer, 2022-2023.
	Univ. of Michigan Mathematics Climate Committee Member, 2021-2023.
	Univ. of Michigan Math Undergraduate Student Advisory Council Founder, 2021-2023.
REFEREING	The Fibonacci Quarterly
	The Journal of Number Theory
	The Rose-Hulman Undergraduate Mathematics Journal
RELEVANT SKILLS	Languages: English (fluent) Programming Languages: $\text{\LaTeX}$, Python, C, C++, Haskell, Ruby, Java, HTML, CSS, Sagemath, Mathematica
RELEVANT COURSEWORK OUTSIDE OF MATHEMATICS	☐ Programming and Intro to Data Structures ☐ Machine Learning for Natural Language Processing