

Andrew Sack

UNIVERSITY OF MICHIGAN - DEPARTMENT OF MATHEMATICS

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Education

UCLA

PH.D. MATHEMATICS

2019 - 2024

- Advisor: Pavel Galashin

UCLA

M.A. MATHEMATICS

2022

University of Florida

B.S. MATHEMATICS - SUMMA CUM LAUDE

2015 - 2019

Professional Experience

University of Michigan

PAREKH RESEARCH POSTDOCTORAL ASSISTANT PROFESSOR

2024 - Present

Papers and Preprints

1. *Operahedron Lattices.*
(with C. Defant) preprint (submitted), arXiv:2402.12717, 25pp.
2. *Poset Associahedra and Stack-sorting.*
(with S. Ngyuen) preprint (submitted), arXiv:2310.02512, 23pp.
3. *The poset associahedron f -vector is a comparability invariant.*
(with S. Ngyuen) preprint (submitted), arXiv:2310.00157, 9pp.
4. *A Realization of Poset Associahedra.* preprint (submitted), arXiv:2301.11449, 12pp.
5. *On audio enhancement via online non-negative matrix factorization.*
(with W. Jiang, M. Perlmutter, P. Salanevich, and D. Needell) CISS 2022
6. *Unexpected failure of a Greedy choice Algorithm Proposed by Hoffman.*
(with L. Heller) Int. J. Math. Comput. Sci 12.2 (2017): 117-126.

Fellowships

2019-2024 Graduate Research Fellowship Program, NSF

Talks and Posters

TALKS

Winter 2024. *The combinatorics of poset associahedra.* SocalDM2024

Winter 2024. *On the f -vectors of poset associahedra.* Conference on Enumerative and Algebraic Combinatorics (SaganFest)

Winter 2023. *A Realization of Poset Associahedra.* USC Combinatorics Seminar

POSTERS

Summer 2024. *On the f -vectors of poset associahedra*. FPSAC 2024

Summer 2023. *A Realization of Poset Associahedra*. FPSAC 2023

Teaching Experience

UNIVERSITY OF MICHIGAN

MATH 465: Combinatorics, Instructor

MATH 217: Linear Algebra, Instructor

UCLA

MATH 115A: Linear Algebra, Teaching Assistant

MATH 33A: Linear Algebra and Applications, Teaching Assistant

MATH 131A: Analysis, Teaching Assistant

MATH 11N: Number Theory, Teaching Assistant

MATH 110B: Algebra, Teaching Assistant

MATH 31B: Integration and Infinite Series, Teaching Assistant

MATH 115AH: Linear Algebra Honors, Teaching Assistant

MATH 61: Introduction to Discrete Structures, Teaching Assistant

Outreach

Youtube and Tiktok, I create videos about higher math on my channel *SackVideo* that have amassed over **31 million views** and **200,000 hours** of watch time. The topics include the probabilistic method, Catalan numbers, the axiom of determinacy, the $\frac{1}{3} - \frac{2}{3}$ conjecture, and generating functions.