

David Soukup

math.ucla.edu/~soukup | [✉ soukup@math.ucla.edu](mailto:soukup@math.ucla.edu)

UCLA Math Department, 520 Portola Plaza, Math Sciences Building, Los Angeles CA 90095

RESEARCH INTERESTS

Computational complexity in combinatorics and algebra
Enumerative Combinatorics
Combinatorics on words and groups

EDUCATION

University of California, Los Angeles (UCLA) Sep 2018 - present

- M.A. in Mathematics, Dec 2019
- C.Phil. in Mathematics, Dec 2022
- Ph.D. in Mathematics, expected Jun 2024
- Advisor: Igor Pak

University of Rochester Sep 2014 - Jun 2018

- B.S. in Mathematics with Honors
- Advisor: Alex Iosevich

AWARDS AND FELLOWSHIPS

UCLA Graduate Dean's Scholar Award 2018-2020

- Fellowship for incoming graduate students (\$14,500)

UCLA Dissertation Year Fellowship 2023-2024

- Fellowship for graduate students in their last year (\$20,000 plus tuition + fees)

PUBLICATIONS

David Soukup, Complexity of parity of linear extensions and sign balance of posets, in preparation.

David Soukup, Complexity of ice quiver mutation equivalence. Accepted, *Annals of Combinatorics*. [arxiv:2306.03232](https://arxiv.org/abs/2306.03232)

Igor Pak and **David Soukup**, Algebraic and arithmetic properties of the cogrowth sequence of nilpotent groups. Submitted. [2210.09419](https://arxiv.org/abs/2210.09419)

Mike Desgrottes, Steven Senger, **David Soukup**, and Renjun Zhu, A general framework for studying finite rainbow configurations. *Combinatorial and additive number theory. III*, 55–63, in Springer Proc. Math. Stat., 297, Springer, Cham, (2020).

David M. Soukup, Embeddings of weighted graphs in Erdős-type settings. *Mosc. J. Comb. Number Theory* 8 (2019), no. 2, 117–123.

INVITED TALKS

Combinatorics of Cogrowth Feb 2023
– University of Southern California Combinatorics Seminar

Parity of Linear Extensions of Posets and Complexity Oct 2023
– UCLA Combinatorics Forum

TEACHING EXPERIENCE

Teaching Assistant, Fall 2018 - present

UCLA Math 31A: Differential and Integral Calculus
UCLA Math 31B: Integration and Infinite Series [x2]
UCLA Math 32A: Calculus of Several Variables (part 1) [x4]
UCLA Math 32B: Calculus of Several Variables (part 2)
UCLA Math 33A: Linear Algebra and Applications [x3]
UCLA Math 61: Introduction to Discrete Structures
UCLA Math 110A: Algebra (part 1)
UCLA Math 115A: Linear Algebra (part 1)
UCLA Math 115B: Linear Algebra (part 2)
UCLA Math 167: Mathematical Game Theory [x3]
UCLA Math 170A: Probability Theory
UCLA Math 170E: Introduction to Probability
UCLA Math 170S: Introduction to Statistics [x2]
UCLA Math 177: Theory of Interest and Applications [x2]
UCLA Math 180: Graph Theory [x3]
UCLA Math 184: Enumerative Combinatorics [x3]

Total: 30 classes, approximately 1500 students.

OUTREACH AND SERVICE

Directed Reading Program. Mentored undergraduate students in reading advanced topics which would not normally be covered in the course of undergraduate education.

Sasha Kononova, Fall 2021: Linear algebra methods in combinatorics.

Isaac Li, Fall 2021: Pattern avoidance.

Ruiqi Zhang, Fall 2022: Bayesian statistics.

Mastery-based grading. Hired as part of pilot project to implement mastery-based grading in UCLA's lower division linear algebra course (Math 33A), Fall 2021. Wrote assessments and problem banks for use in this and future courses.

Returned as head TA for same class Spring 2022.

Combinatorics participating seminar. Co-organized UCLA's combinatorics participating seminar, Spring 2022 and Spring 2023