

Samuel Braunfeld

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 Charles University
 Computer Science Institute
 Malostranské náměstí 2/25
 118 00 Praha 1, Czechia
- RESEARCH INTERESTS Model theory and combinatorics – particularly ω -categoricity, homogeneity, structural Ramsey theory, asymptotic enumeration, and extremal combinatorics
- POSITIONS 2018-2020: **President’s Postdoctoral Fellow** University of Maryland, College Park
 2020-2021: **Postdoctoral Fellow** University of Maryland, College Park
 Mentor: Michael C Laskowski
- 2021-Present: **Postdoctoral Fellow** Charles University
 Mentors: Jan Hubička and Jaroslav Nešetřil
- EDUCATION **Rutgers University, New Brunswick**
 Ph.D. in Mathematics, 2018
 • Advisor: Gregory Cherlin
 • Thesis: *Infinite Limits of Finite-Dimensional Permutation Structures, and their Automorphism Groups: Between Model Theory and Combinatorics*, arXiv:1805.04219
- University of California, Berkeley**
 B.A. in Mathematics, B.S. in Electrical Engineering and Computer Science, 2013
- PAPERS 1. Ertem Esiner, Adilet Kachkeev, Samuel Braunfeld, Alptekin Küpçü, Öznur Özkasap, *FlexDPDP: Flexlist-Based Optimized Dynamic Provable Data Possession*, ACM Transactions on Storage **12** (4) (2016) 23
2. Samuel Braunfeld, *The Lattice of Definable Equivalence Relations in Homogeneous n -Dimensional Permutation Structures*, Electronic Journal of Combinatorics **23** (2016), no. 4, Paper 44
3. Samuel Braunfeld, *Homogeneous 3-Dimensional Permutation Structures*, The Electronic Journal of Combinatorics **25** (2018), no. 2, Paper 52
4. Samuel Braunfeld, *Λ -ultrametric spaces and lattices of equivalence relations*, Algebra Universalis. **80** (2019), no. 3
5. Samuel Braunfeld, *The undecidability of joint embedding and joint homomorphism for hereditary graph classes*, Discrete Mathematics and Theoretical Computer Science. **21** (2019), no. 2
6. Samuel Braunfeld, Pierre Simon, *The classification of homogeneous finite-dimensional permutation structures*, The Electronic Journal of Combinatorics, **27** (2020), no. 1, Paper 38
7. Samuel Braunfeld, *The undecidability of joint embedding for 3-dimensional permutation classes*, Discrete Mathematics and Theoretical Computer Science. **22** (2021), no. 2

8. Samuel Braunfeld and Michael C Laskowski, *Counting siblings in universal theories*, arXiv preprint, arXiv:1910.11230 (2019) (accepted, Journal of Symbolic Logic)
9. Samuel Braunfeld, *Monadic stability and growth rates of ω -categorical structures*, arXiv preprint, arXiv:1910.04380 (2019) (accepted, Proceedings of the London Mathematical Society)
10. Samuel Braunfeld and Michael C Laskowski, *Mutual algebraicity and cellularity*, (2019) (accepted, Archive for Mathematical Logic)
11. Samuel Braunfeld and Michael C Laskowski, *Characterizations of monadic NIP*, arXiv preprint, arXiv:2104.12989 (2021) (accepted, Transactions of the American Mathematical Society, Series B)
12. Samuel Braunfeld, *Ramsey Expansions of Λ -Ultrametric Spaces*, arXiv preprint, arXiv:1710:01193 (2017) (submitted)
13. Samuel Braunfeld and Michael C Laskowski, *Worst case expansions of complete theories*, arXiv preprint, arXiv:2107.10920 (2021) (submitted)
14. Samuel Braunfeld and Michael C Laskowski, *Theories admitting congruences over sets and boundedness*, arXiv preprint, arXiv:2109.08943 (2021) (submitted)

PAPERS WITH
UNDERGRADUATE
CO-AUTHORS

1. Samuel Braunfeld and Matthew Kukla, *Logical limit laws for layered permutations and related structures* (accepted, Enumerative Combinatorics and Applications)

GRANTS

AMS-Simons Travel Grant, \$5000 (2020-2022)

Investigator on Czech Science Foundation (GAČR) grant *Ramsey theory in the context of group theory, model theory and topological dynamics*

Investigator on European Research Council Synergy grant *Dynamics and Structure of Networks*

INVITED
TALKS

TBD, Workshop on Model Theory and Combinatorics, Fields Institute (December 2021)

Cellularity and beyond, Séminaire Général de Logique, Paris-Lyons (March 2021)

Cellularity and beyond, Homogeneous Structures: Model Theory meets Universal Algebra, Oberwolfach (January 2021)

Monadic stability and growth rates of ω -categorical structures, Logic and Computation Seminar, University of Pennsylvania (January 2020)

Monadic stability and growth rates of ω -categorical structures, Model Theory Seminar, CUNY (September 2019)

Homogeneous finite-dimensional permutations, Unifying Themes in Ramsey Theory, Banff International Research Station (November 2018)

The undecidability of the joint embedding property for hereditary graph classes, and related problems, Algebra Institute International Seminar, TU Dresden (January 2018)

The undecidability of the joint embedding property for hereditary graph classes, and related problems, Logic Seminar, University of Maryland (December 2017)

The Lattice of Definable Equivalence Relations in Homogeneous n -Dimensional Permutation Structures, Model Theory Seminar, CUNY (April 2016)

CONTRIBUTED
TALKS

Counting substructures of highly symmetric structures, British Combinatorial Conference, online (July 2021)

Counting substructures of highly symmetric structures, Permutation Patterns, online (July 2020)

Countable universal and existentially closed permutations in geometric grid classes, Permutation Patterns, University of Zurich (July 2019)

The undecidability of the joint embedding property for finitely-constrained hereditary graph classes, Permutation Patterns, Dartmouth (July 2018)

The Lattice of Definable Equivalence Relations in Homogeneous n -Dimensional Permutation Structures, Logic Colloquium, University of Leeds (August 2016)

TEACHING
EXPERIENCE

Lecturer

Summer	2016	Linear Algebra
Summer	2017	Linear Algebra
Fall	2018	Applications of Linear Algebra
Spring	2019	Complex Variables
Fall	2019	Elementary Mathematical Logic
Spring	2020	Introduction to Linear Algebra
Fall	2021	(Graduate) Mathematical Logic, Calculus I
Spring	2021	Combinatorics and Graph Theory, Calculus I

SERVICE

Supervised undergraduate research, leading to an accepted paper (2020-2021)

Girls Talk Math UMD group leader (2019)

MATLAB curriculum editing for Linear Algebra at Rutgers (2016)

Model Theory and Mathematical Logic conference co-organizer (2019)

Rutgers/DIMACS REU talks *Homogeneity, amalgamation, and Ramsey theory* (2018,2019)

UMD logic seminar organizer (2019-2021)