

Alexander Rossi Miller

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Positions

2023– Member, Center for Communications Research, Princeton
2022–2023 Guest Researcher, Technische Universität Kaiserslautern, Germany
2017–2020 Member, Universität Wien, Vienna, Austria
2017 Visiting Scientist, Institut Henri Poincaré, Paris, France
2014–2017 Research Assistant Professor, University of Illinois

Publications

23. Denseness results for zeros and roots of unity in character tables
Alexander R. Miller
Submitted
22. Short character values on large conjugacy classes
Alexander R. Miller
Submitted
21. Character and class parameters from entries of character tables of symmetric groups
Alexander R. Miller
Submitted
20. Large-scale Monte Carlo simulations for zeros in character tables of symmetric groups
Alexander R. Miller and Danny Scheinerman
Math. Comp. **94** (2025) 505–515
19. Covering numbers for characters of symmetric groups
Alexander R. Miller
Ann. Sc. Norm. Sup. Pisa Cl. Sci., to appear
18. The characters of symmetric groups that depend only on length
Alexander R. Miller
Math. Z. **304** (2023), no. 9, 1–14
17. Zeros and roots of unity in character tables
Alexander R. Miller
Enseign. Math. **70** (2024) 151–164
16. On Foulkes characters
Alexander R. Miller
Math. Ann. **381** (2021) 1589–1614
15. The sparsity of character tables of high rank groups of Lie type
Michael J. Larsen and Alexander R. Miller
Represent. Theory **25** (2021) 173–192

14. Many zeros of many characters of $GL(n, q)$
Patrick X. Gallagher, Michael J. Larsen, and Alexander R. Miller
Int. Math. Res. Not. IMRN **2022** (2022) 4376–4386
13. Dense proportions of zeros in character values
Alexander R. Miller
C. R. Acad. Sci. Paris, Sér. I **357** (2019) 771–772
12. Character restrictions and reflection groups
Eugenio Giannelli and Alexander R. Miller
J. Algebra **531** (2019) 336–348
11. On parity and characters of symmetric groups
Alexander R. Miller
J. Combin. Theory, Ser. A **162** (2019) 231–240
10. Walls in Milnor fiber complexes
Alexander R. Miller
Doc. Math. **23** (2018) 1247–1261
9. Orthogonal polynomials and Smith normal form
Alexander R. Miller and Dennis Stanton
Monatsh. Math. **187** (2018) 125–145
8. Some characters that depend only on length
Alexander R. Miller
Math. Res. Lett. **24** (2017) 879–891
7. Eigenspace arrangements of reflection groups
Alexander R. Miller
Trans. Amer. Math. Soc. **367** (2015) 8543–8578
6. Foulkes characters for complex reflection groups
Alexander R. Miller
Proc. Amer. Math. Soc. **143** (2015) 3281–3293
5. The probability that a character value is zero for the symmetric group
Alexander R. Miller
Math. Z. **277** (2014) 1011–1015
4. Reflection arrangements and ribbon representations
Alexander R. Miller
Ph.D. Thesis, 2013
European J. Combin. **39** (2014) 24–56
3. Differential posets have strict rank growth: a conjecture of Stanley
(Positively answers 25-year-old question of R. P. Stanley from 1988 in JAMS)
Alexander R. Miller
Order **30** (2013) 657–662
2. Note on 1-crossing partitions
M. Bergerson, A. Miller, A. Pliml, V. Reiner, P. Shearer, D. Stanton, N. Switala
Ars Combinatoria **99** (2011) 83–87
1. Differential posets and Smith normal forms
Alexander R. Miller and Victor Reiner
Order **26** (2009) 197–228

Oberwolfach Reports

2. Vanishing results for character tables
Alexander R. Miller
in “Character Theory and Categorification”, pp. 2267–2333,
Oberwolfach Reports **19** (2022), Report No. 39, 2288–2291
1. Milnor fiber complexes and some representations
Alexander R. Miller
in “Topology of Arrangements and Representation Stability”, pp. 43–123,
Oberwolfach Reports **15** (2018), Report No. 2, 109–113

Lectures (in-person only)

- 2022 Oct Darstellungstheoretage, Technische Universität Kaiserslautern, Germany
- 2022 Aug Character Theory and Categorification, MFO, Oberwolfach, Germany
- 2020 Feb Bern–Neuchâtel–Fribourg Intercity Seminar, Universität Bern, Switzerland
- 2019 Sep Austrian Mathematical Society Conference, Dornbirn, Austria
- 2019 Jan Combinatoire Énumérative et Analytic, Université Paris Diderot, Paris, France
- 2018 Nov Einstein Workshop on Algebraic Combinatorics, Freie Universität Berlin, Germany
- 2018 May Algebra & Representation Theory Seminar, University of Cambridge, United Kingdom
- 2018 Mar Séminaire Lotharingien de Combinatoire, Institut Camille Jordan, Lyon, France
- 2018 Mar Arbeitsgemeinschaft für Diskrete Mathematik, Technische Universität Wien, Austria
- 2018 Jan Topology of Arrangements and Representation Stability, MFO, Oberwolfach, Germany
- 2017 Dec Algebraic and Enumerative Combinatorics, SFB Statusseminar, Strobl, Austria
- 2017 Nov Algebra und Algebraischen Kombinatorik, Leibniz Universität Hannover, Germany
- 2017 Sep Séminaire Lotharingien de Combinatoire, Bertinoro, Italy

Journals and Conferences Refereed

Advances in Applied Mathematics
Algebraic Combinatorics
Canadian Mathematical Bulletin
Communications in Algebra
Discrete and Computational Geometry
Discrete Mathematics
Electronic Journal of Combinatorics
Formal Power Series and Algebraic Combinatorics
Journal of Algebraic Combinatorics
Journal of the Australian Mathematical Society
Journal of Combinatorial Theory Series A
Journal für die reine und angewandte Mathematik (Crelle’s Journal)
Order, a journal on the theory of ordered sets and its applications
Proceedings of the American Mathematical Society
SIAM Journal on Discrete Mathematics