

Richard Montgomery

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Employment

08/24 –	Reader	}	University of Warwick
04/22 – 07/24	Associate Professor		
08/21 – 03/22	Reader in Combinatorics	}	University of Birmingham
08/20 – 07/21	Senior Birmingham Fellow		
04/18 – 07/20	Birmingham Fellow		
10/15 – 09/19	Junior Research Fellow		Trinity College, Cambridge
04/15 – 08/15	Postdoctoral Fellow		University of Birmingham

Education

10/11 – 06/15	PhD	University of Cambridge
	<i>Supervised by Andrew Thomason</i>	
10/07 – 06/11	BA with MMath	University of Cambridge

Prizes and Grant Awards

2024	EMS prize	
2020	Philip Leverhulme Prize	
2020	ERC Starting Grant	
2019	European Prize in Combinatorics	<i>jointly with Alexey Pokrovskiy.</i>

Graduate students

Teo Petrov	2024 –	
Daniel Ílkovič	2023 –	<i>jointly supervised with Daniel Král' (Masaryk University)</i>
Jun Yan	2021 –	
Alistair Benford	2019–2023	

Research Fellows

Matías Pavez-Signé	08/21 – 09/23
Candida Bowtell	10/21 – 04/24
Barnabás Janzer	06/23 – 09/23
Debsoumya Chakraborti	10/23 –
Natalie Behague	11/23 –

Papers and preprints

1. Logarithmically-small minors and topological minors
Journal of the London Mathematical Society, 2014.
2. Almost all friendly matrices have many obstructions
SIAM Journal on Discrete Mathematics, 2015.
3. A proof of Mader's conjecture on large clique subdivisions in C_4 -free graphs
With Hong Liu.
Journal of the London Mathematical Society, 2017.
4. Fractional clique decompositions of partite graphs
Combinatorics, Probability and Computing, 2017.
5. Fractional clique decompositions of dense graphs and hypergraphs
With Ben Barber, Daniela Kühn, Allan Lo and Deryk Osthus.
Journal of Combinatorial Theory, Series B, 2017.
6. On the decomposition threshold of a given graph
With Stefan Glock, Daniela Kühn, Allan Lo and Deryk Osthus.
Random Structures & Algorithms, to appear.
7. Spanning trees in random graphs
Advances in Mathematics, 2019
8. Hamiltonicity in random graphs is born resilient
Journal of Combinatorial Theory, Series B, 2018.
9. Rainbow spanning trees in properly coloured complete graphs
With József Balogh and Hong Liu.
Discrete Applied Mathematics, 2018.
10. Fractional clique decompositions of dense graphs
Random Structures & Algorithms, 2018.
11. Forcing large tight components in 3-graphs
With Agelos Georgakopoulos and John Haslegrave.
European Journal of Combinatorics, 2019.
12. Embedding spanning bounded degree graphs in randomly perturbed graphs
With Julia Böttcher, Olaf Parczyk and Yury Person.
Random Structures & Algorithms, 2020.
13. Universality for bounded degree spanning trees in randomly perturbed graphs
With Julia Böttcher, Jie Han, Yoshiharu Kohayakawa, Olaf Parczyk
and Yury Person.
Mathematika, 2019.
14. Embedding rainbow trees with applications to graph labelling and decomposition
With Alexey Pokrovskiy and Benny Sudakov.
Journal of the European Mathematical Society, 2020.

15. Decompositions into spanning rainbow structures
With Alexey Pokrovskiy and Benny Sudakov.
Proceedings of the London Mathematical Society, 2019.
16. Spanning surfaces in 3-graphs
With Agelos Georgakopoulos, John Haslegrave and Bhargav Narayanan.
Journal of the European Mathematical Society, 2020.
17. Minimalist designs
With Ben Barber, Stefan Glock, Daniela Kühn, Allan Lo and Deryk Osthus.
Random Structures & Algorithms, 2020.
18. Hamiltonicity in random directed graphs is born resilient
Combinatorics, Probability and Computing, 2020.
19. Decompositions into isomorphic rainbow spanning trees
With Stefan Glock, Daniela Kühn and Deryk Osthus.
Journal of Combinatorial Theory, Series B, 2020.
20. A proof of Ringel's Conjecture
With Alexey Pokrovskiy and Benny Sudakov.
Geometric and Functional Analysis, 2021.
21. C_4 -free subgraphs with large average degree
With Alexey Pokrovskiy and Benny Sudakov.
Israel Journal of Mathematics, 2021.
22. A solution to Erdős and Hajnal's odd cycle problem
with Hong Liu.
Journal of the American Mathematical Society, 2023.
23. Spanning trees in dense directed graphs
with Amarja Kathapurkar.
Journal of Combinatorial Theory, Series B, 2022.
24. Spanning cycles in random directed graphs
Random Structures & Algorithms, 2024.
25. Trees with few leaves in tournaments
with Alistair Benford.
Journal of Combinatorial Theory, Series B, 2022.
26. Transversal factors and spanning trees
with Alp Müyesser and Yani Pehova.
Advances in Combinatorics, 2022.
27. Trees with many leaves in tournaments
with Alistair Benford.
Journal of Combinatorial Theory, Series B, 2025.
28. Towards the Erdős-Gallai Cycle Decomposition Conjecture
with Matija Bucić.
Advances in Mathematics, 2024 (and STOC, 2023).

29. Counting spanning subgraphs in dense hypergraphs
with Matías Pavez-Signé.
Combinatorics, Probability and Computing, 2024.
30. A proof of the Ryser-Brualdi-Stein conjecture for large even n
31. Ramsey goodness of bounded-degree trees
with Jun Yan and Matías Pavez-Signé.
32. Global rigidity of random graphs in \mathbb{R}
with Rajko Nenadov and Tibor Szabó.
33. Hamiltonicity of expanders: optimal bounds and applications
with Nemanja Draganić, David Munhá Correia, Alexey Pokrovskiy and Benny Sudakov.
34. Packing large trees in the tree packing conjecture
with Barnabás Janzer.
35. Edge-disjoint cycles with the same vertex set
with Debsoumya Chakraborti, Oliver Janzer and Abhishek Methuku.
36. Approximate path decompositions of regular graphs
with Alp Müyesser, Alexey Pokrovskiy and Benny Sudakov.
37. Transversals in Latin squares (survey)
Surveys in Combinatorics, 2024.
38. Almost-full transversals in equi- n -squares
With Debsoumya Chakraborti, Micha Christoph, Zach Hunter and Teo Petrov.
39. On decomposition thresholds for odd-length cycles and other tripartite graphs
With Darryn Bryant, Peter Dukes, Daniel Horsley and Barbara Maenhaut.
40. Regular subgraphs at every density
With Debsoumya Chakraborti, Oliver Janzer and Abhishek Methuku.
41. Almost every Latin square has a decomposition into transversals
With Candida Bowtell

Seminars and Talks

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| 05/13 | Combinatorics seminar, University of Cambridge. |
| 08/13 | Talk at the 16th Random Structures and Algorithms Conference. |
| 03/14 | Seminar on Discrete and Applicable Mathematics, LSE. |
| 04/14 | Mittagsseminar, ETH, Zurich. |
| 10/14 | Combinatorics seminar, University of Oxford. |
| 10/14 | Combinatorics seminar, University of Birmingham. |
| 12/14 | Combinatorics seminar, Queen Mary University of London. |
| 03/15 | Talk at the 4th Joint BMC/BAMC Colloquium. |
| 10/16 | Combinatorics seminar, University of Birmingham. |

- 11/16 Combinatorics seminar, University of Warwick.
- 03/16 Mittagssseminar, ETH, Zurich.
- 11/17 Combinatorics seminar, University of Cambridge.
- 12/17 Oberseminar Diskrete Mathematik, Goethe University.
- 11/18 Dimap seminar, University of Warwick.
- 04/19 Mittagssseminar, ETH, Zurich.
- 11/19 Seminar, Queen Mary, University of London.
- 10/20 Extremal and Probabilistic Combinatorics Webinar.
- 10/20 Combinatorics Seminar at the University of Victoria, Canada (Online).
- 11/20 TU Graz Combinatorics and Optimization Seminar (Online).
- 01/21 Oxford Discrete Mathematics and Probability Seminar (Online).
- 05/22 Combinatorics seminar, University of Warwick.
- 10/22 Combinatorics seminar, University of Bristol.
- 11/22 Combinatorial Theory seminar, University of Oxford.
- 01/23 Combinatorics seminar, University of Cambridge.
- 03/23 Discrete Mathematics, Tsinghua University, Beijing (Online).
- 06/23 Plenary talk at the 21st Random Structures and Algorithms Conference, Pittsburgh.
- 11/23 Featured speaker at Atlanta Lecture Series XXVII on Combinatorics and Graph Theory.
- 11/23 Combinatorics seminar, Georgia Tech.
- 11/23 Combinatorics seminar, Emory University.
- 04/24 Invited speaker at the Postgraduate Combinatorial Conference.
- 06/24 TU Graz Combinatorics and Optimization Seminar (Online).
- 07/24 Plenary talk at the 30th British Combinatorics Conference.
- 07/24 Prize talk, 9ECM.
- 12/24 Combinatorics Seminar, University of Cambridge.

Workshops attended

- 01/16 Workshop on Graph Theory, Oberwolfach.
- 12/16 Workshop on Large Scale Structures in Random Graphs, London.
- 01/17 Workshop on Combinatorics, Oberwolfach.
- 07/18 Large networks and random graphs, Frankfurt.
- 08/18 Southwestern German Workshop on Graph Theory.
- 12/18 Workshop on Recent Advances in Extremal Combinatorics, Clay Institute, Oxford.
- 04/19 Workshop on Combinatorics, Probability and Computing, Oberwolfach.
- 09/19 Workshop on Probabilistic and Extremal Combinatorics, Banff.
- 01/20 Workshop on Combinatorics, MFO, Oberwolfach.
- 04/22 Workshop on Combinatorics, Probability and Computing, Oberwolfach.
- 05/22 Cross-community collaborations in Combinatorics, Banff.
- 08/22 Armenian Workshop on Graphs, Combinatorics, Probability, and their application to machine learning, Armenia.
- 08/22 Recent Advances in Probabilistic and Extremal Combinatorics, Ascona.
- 01/23 Workshop on Combinatorics, MFO, Oberwolfach.
- 05/23 UCL workshop in extremal and probabilistic combinatorics, London.
- 07/23 Workshop at Warwick (Organiser).
- 12/23 Extremal Problems in Graphs, Designs, and Geometries at MATRIX in Melbourne.
- 08/24 Workshop at Warwick (Organiser).
- 10/24 New Frontiers in Probabilistic and Extremal Combinatorics, Clay Institute, Oxford.

Teaching and interviewing

2011-2018	Regular supervision of undergraduates in Cambridge, supervising Graph Theory, Numbers and Sets, and Coding and Cryptography.
2012-2015	Interviewed prospective undergraduate students for Peterhouse, Cambridge.
2016-2017	Interviewed prospective undergraduate students for Trinity College, Cambridge.
2018	Graduate course on Topics in Random Graphs at the University of Cambridge.
2019	Co-supervision of Master's project on graph colouring at the University of Birmingham (UoB).
2019-2020	First year tutorials at the University of Birmingham.
2019-2021	Yearly supervision of a Master's project at the University of Birmingham.
2020-2021	First and second year tutorials at the University of Birmingham.
2021-2022	Half of lecture course 'Advanced Topics in Combinatorics' given at the University of Birmingham.
2022-2023	Lecture course on 'Theory of Random Graphs' at the University of Warwick.
2023-2024	Lecture course on 'Theory of Random Graphs' at the University of Warwick.