

Richard Montgomery

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Employment

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

Education

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

Prizes and Grant Awards

2020	Philip Leverhulme Prize	
2020	ERC Starting Grant	
2019	European Prize in Combinatorics	Jointly with Alexey Pokrovskiy.

Graduate students

Jun Yan	2021 –
Alistair Benford	2019–2023

Research Fellows

Matías Pavez-Signé	08/21 – 09/23
Candida Bowtell	10/21 –
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.
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, to appear.
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.
28. Towards the Erdős-Gallai Cycle Decomposition Conjecture
with Matija Bucić.
29. Counting spanning subgraphs in dense hypergraphs
with Matías Pavez-Signé.
Combinatorics, Probability and Computing, to appear.

- 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.
- 34. Edge-disjoint cycles with the same vertex set
with Debsoumya Chakraborti, Oliver Janzer and Abhishek Methuku .

Survey papers

- 35. Transversals in Latin squares
Surveys in Combinatorics 2024 (to appear).

Seminars and Talks

- 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 Mittagsseminar, 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 Mittagsseminar, 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.

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.

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.