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Dr Andrew Treglown PhD

Birmingham Fellow

School of Mathematics (/schools/mathematics/index.aspx)

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About

Dr Andrew Treglown is a Birmingham Fellow, having previously worked as a Research Fellow at Queen Mary, University of London and Charles University, Prague.

Andrew is a member of the Combinatorics group. His research interests mainly focus on extremal and probabilistic graph theory.

Andrew has a number of international collaborative links, particularly with various institutions in the USA. He regularly gives talks at international conferences and has been invited to give a number of seminars across Europe and in the USA.

School web page: **http://web.mat.bham.ac.uk/~treglowa (http://web.mat.bham.ac.uk/~treglowa)**

Qualifications

- PhD in Pure Mathematics, University of Birmingham, 2011
- MSci in Mathematical Sciences, University of Birmingham, 2007

Biography

Andrew Treglown received an MSci from Birmingham in 2007, followed by a PhD in 2011. After research fellowships at Queen Mary, University of London and Charles University, Prague, he re-joined the School of Mathematics here in Birmingham in September 2013.

Postgraduate supervision

Andrew Treglown is interested in supervising PhD students in Combinatorics. If you are interested, please email him.

Research

Research themes

- Extremal graph theory
- Probabilistic combinatorics
- Ramsey theory
- Graph decompositions
- Hypergraphs and directed graphs

Research activity

Andrew's primary research interests lie in extremal graph theory. His most recent work has been on graph decompositions. In particular, together with B. Csaba, D. Kühn, A. Lo and D. Osthus, he has solved the beautiful 1-factorization conjecture for large graphs (see **http://en.wikipedia.org/wiki/1-factorization_conjecture#1-factorization_conjecture (http://en.wikipedia.org/wiki/1-factorization_conjecture#1-factorization_conjecture)**).
This classical conjecture gives a condition for a regular graph to have a decomposition into perfect matchings.

One of the most central results in Ramsey theory is Goodman's theorem from 1959 which determines the minimum number of monochromatic triangles in a 2-coloured complete graph. Recently, Andrew and his co-authors (J. Cummings, D. Kral, F. Pfender, K. Sperfeld and M. Young) have solved this problem for 3-coloured graphs, thereby solving a classical problem of Goodman.

Andrew has also written a number of papers on (hyper)graph embedding problems. For example, in a sequence of several papers, he and his co-authors (D. Kühn, D. Osthus and Y. Zhao) have established a number of minimum degree conditions that ensure a hypergraph contains a perfect matching.

Publications

For a complete list of publications, visit **http://web.mat.bham.ac.uk/~treglowa/pubat.html (http://web.mat.bham.ac.uk/~treglowa/pubat.html)**

Selected publications

- Kühn, D., Osthus, D., Treglown, A. (2009), An Ore-type theorem for perfect packings in graphs, **SIAM Journal on Discrete Mathematics,** 23: 1335-1355
- Kühn, D., Osthus, D., Treglown, A. (2010), Hamiltonian degree sequences in digraphs, **Journal of Combinatorial Theory Series B,** 100: 367-380
- Kühn, D., Osthus, D., Treglown, A. (2010), Hamilton decompositions of regular tournaments, **Proceedings of the London Mathematical Society,** 101: 303-335
- Knox, F., Treglown, A., (2013) Embedding spanning bipartite graphs of small bandwidth, **Combinatorics, Probability and Computing,** 22: 71-96

- Treglown, A., Zhao, Y. (2013), Exact minimum degree thresholds for perfect matchings in uniform hypergraphs II, **Journal of Combinatorial Theory Series A,** 120: 1463-1482
- Kühn, D., Osthus, D., Treglown, A. (2013), Matchings in 3-uniform hypergraphs, **Journal of Combinatorial Theory Series B,** 103: 291-305
- Cummings, J., Kral, D., Pfender, F., Sperfeld, K., Treglown, A., Young, M. (2013), Monochromatic triangles in three-coloured graphs, **Journal of Combinatorial Theory Series B,** 103: 489-503

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