

CURRICULUM VITAE – DAVID CONLON

PERSONAL INFORMATION

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POSITIONS HELD

2016- : Professor, University of Oxford

2011-16 : Associate Professor, University of Oxford.

2011- : Tutorial Fellow, Wadham College, Oxford.

2010- : Royal Society University Research Fellow.

2007-10: Junior Research Fellow, St John's College, Cambridge.

EDUCATION

2004-09: PhD in mathematics, University of Cambridge.
Advisor: W.T. Gowers
Title: *Upper bounds for Ramsey numbers.*

2003-04: Part III mathematics, University of Cambridge.
With distinction.

1999-2003: BA in mathematics, Trinity College Dublin.
First class degree with gold medal.

AWARDS AND DISTINCTIONS

2014: Sectional speaker at the ICM.
2011: European Prize in Combinatorics.
2006: Smith–Knight Prize, University of Cambridge.

PUBLICATIONS

Lines in Euclidean Ramsey theory, with J. Fox, to appear in *Discrete Comput. Geom.*

Rational exponents in extremal graph theory, with B. Bukh, to appear in *J. Eur. Math. Soc.*

A note on induced Ramsey numbers, with D. Dellamonica, S. La Fleur, V. Rödl and M. Schacht, to appear in *A Journey through Discrete Mathematics: A Tribute to Jiří Matoušek.*

Graphs with few paths of prescribed length between any two vertices, to appear in *Bull. London Math. Soc.*

Hereditary quasirandomness without regularity, with J. Fox and B. Sudakov, to appear in *Math. Proc. Cam. Phil. Soc.*

Finite reflection groups and graph norms, with J. Lee, *Adv. Math.* **315** (2017), 130–165.

Hedgehogs are not colour blind, with J. Fox and V. Rödl, *J. Combin.* **8** (2017), 475–485.

Almost-spanning universality in random graphs, with A. Ferber, R. Nenadov and N. Škorić, *Random Structures Algorithms* **50** (2017), 380–393.

Freiman homomorphisms on sparse random sets, with W. T. Gowers, *Q. J. Math.* **68** (2017), 275–300.

Quasirandom Cayley graphs, with Y. Zhao, *Discrete Anal.* 2017, Paper No. 6, 14 pp.

A sequence of triangle-free pseudorandom graphs, *Combin. Probab. Comput.* **26** (2017), 195–200.

Ordered Ramsey numbers, with J. Fox, C. Lee and B. Sudakov, *J. Combin. Theory Ser. B* **122** (2017), 353–383.

Combinatorial theorems in sparse random sets, with W. T. Gowers, *Ann. of Math.* **184** (2016), 367–454.

Short proofs of some extremal results II, with J. Fox and B. Sudakov, *J. Combin. Theory Ser. B* **121** (2016), 173–196.

Ramsey numbers of cubes versus cliques, with J. Fox, C. Lee and B. Sudakov, *Combinatorica* **36** (2016), 37–70.

Monochromatic cycle partitions in local edge colourings, with M. Stein, *J. Graph Theory* **81** (2016), 134–145.

A relative Szemerédi theorem, with J. Fox and Y. Zhao, *Geom. Funct. Anal.* **25** (2015), 733–762.

Recent developments in graph Ramsey theory, with J. Fox and B. Sudakov, *Surveys in Combinatorics 2015*, 49–118.

On the grid Ramsey problem and related questions, with J. Fox, C. Lee and B. Sudakov, *Int. Math. Res. Not.* **17** (2015), 8052–8084.

The Erdős–Gyárfás problem on generalized Ramsey numbers, with J. Fox, C. Lee and B. Sudakov, *Proc. London Math. Soc.* **110** (2015), 1–18.

Distinct volume subsets, with J. Fox, W. Gasarch, D. G. Harris, D. Ulrich and S. Zbarsky, *SIAM J. Discrete Math.* **29** (2015), 472–480.

- Combinatorial theorems relative to a random set, Proceedings of the International Congress of Mathematicians 2014, Vol. 4, 303–328.
- The Green–Tao theorem: an exposition, with J. Fox and Y. Zhao, *EMS Surv. Math. Sci.* **1** (2014), 249–282.
- On the KŁR conjecture in random graphs, with W. T. Gowers, W. Samotij and M. Schacht, *Israel J. Math.* **203** (2014), 535–580.
- Cycle packing, with J. Fox and B. Sudakov, *Random Structures Algorithms* **45** (2014), 608–626.
- Ramsey-type results for semi-algebraic relations, with J. Fox, J. Pach, B. Sudakov and A. Suk, *Trans. Amer. Math. Soc.* **366** (2014), 5043–5065.
- Extremal results in sparse pseudorandom graphs, with J. Fox and Y. Zhao, *Adv. Math.* **256** (2014), 206–290.
- Short proofs of some extremal results, with J. Fox and B. Sudakov, *Combin. Probab. Comput.* **23** (2014), 8–28.
- Two extensions of Ramsey’s theorem, with J. Fox and B. Sudakov, *Duke Math. J.* **162** (2013), 2903–2927.
- Graph removal lemmas, with J. Fox, in *Surveys in Combinatorics 2013*, 1–50.
- The Ramsey number of dense graphs, *Bull. London Math. Soc.* **45** (2013), 483–496.
- An improved bound for the stepping-up lemma, with J. Fox and B. Sudakov, *Discrete Appl. Math.* **161** (2013), 1191–1196.
- On two problems in graph Ramsey theory, with J. Fox and B. Sudakov, *Combinatorica* **32** (2012), 513–535.
- Bounds for graph regularity and removal lemmas, with J. Fox, *Geom. Funct. Anal.* **22** (2012), 1191–1256.
- Erdős–Hajnal-type theorems in hypergraphs, with J. Fox and B. Sudakov, *J. Combin. Theory Ser. B* **102** (2012), 1142–1154.
- On the Ramsey multiplicity of complete graphs, *Combinatorica* **32** (2012), 171–186.
- Weak quasi-randomness for uniform hypergraphs, with H. Hàn, Y. Person and M. Schacht, *Random Structures Algorithms* **40** (2012), 1–38.
- Large almost monochromatic subsets in hypergraphs, with J. Fox and B. Sudakov, *Israel J. Math.* **181** (2011), 423–432.
- An approximate version of Sidorenko’s conjecture, with J. Fox and B. Sudakov,

Geom. Funct. Anal. **20** (2010), 1354–1366.

An extremal theorem in the hypercube, *Electron. J. Combin.* **17** (2010), R111.

Hypergraph Ramsey numbers, with J. Fox and B. Sudakov, *J. Amer. Math. Soc.* **23** (2010), 247–266.

On-line Ramsey numbers, *SIAM J. Discrete Math.* **23** (2009), 1954–1963.

Ramsey numbers of sparse hypergraphs, with J. Fox and B. Sudakov, *Random Structures Algorithms* **35** (2009), 1–14.

Hypergraph packing and sparse bipartite Ramsey numbers, *Combin. Probab. Comput.* **18** (2009), 913–923.

A new upper bound for diagonal Ramsey numbers, *Ann. of Math.* **170** (2009), 941–960.

A new upper bound for the bipartite Ramsey problem, *J. Graph Theory* **58** (2008), 351–356.

On the existence of rainbow 4-term arithmetic progression, with V. Jungić and R. Radoičić, *Graphs Combin.* **23** (2007), 249–254.

Rainbow solutions of linear equations over \mathbb{Z}_p , *Discrete Math.* **306** (2006), 2056–2063.

SUBMITTED PAPERS Hypergraph expanders from Cayley graphs.

Hypergraph cuts above the average, with J. Fox, M. Kwan and B. Sudakov.

Tower-type bounds for unavoidable patterns in words, with J. Fox and B. Sudakov.

Quasirandomness in hypergraphs, with E. Aigner-Horev, H. Hàn, Y. Person and M. Schacht.

Some advances on Sidorenko’s conjecture, with J. H. Kim, C. Lee and J. Lee.

SELECTED TALKS 11/17: Algebraic methods in combinatorics workshop, Harvard University.

08/17: Random Structures and Algorithms, Gniezno, Poland.

05/17: Recent advances in Extremal Combinatorics workshop, TSIMF, China.

04/17: Structure and Randomness workshop, Simons Institute, Berkeley.

06/16: SIAM Conference on Discrete Mathematics, Atlanta.

03/16: MINT Distinguished Lecture Series, Tel Aviv University.

07/15: British Combinatorial Conference, University of Warwick.

06/15: Connections in Discrete Mathematics, Simon Fraser University, Vancouver.

04/15: Atlanta Lecture Series, Georgia Tech.

12/14: Departmental colloquium, Yale University.

08/14: Combinatorics section, ICM, Seoul.

08/14: ICM Satellite conference on Extremal and Structural Graph Theory.

04/14: Combinatorics section, British Mathematical Colloquium, Queen Mary.
 11/13: Diamant symposium, Lunteren, The Netherlands.
 07/13: Erdős Centennial conference, Budapest.
 01/13: Extremal and Probabilistic Combinatorics workshop, IPAM, Los Angeles.
 07/12: Additive Combinatorics conference, Paris.
 06/12: Perspectives in Discrete Mathematics, CRM, Barcelona.
 01/12: Discrete Mathematics workshop, Eilat, Israel.
 08/11: Eurocomb, Rényi Institute, Budapest.
 08/11: Irish Maths Society meeting, University of Limerick.
 04/11: Hypergraph Turán Problem workshop, AIMS, Palo Alto.
 10/10: Discrete Mathematics seminar, Institute for Advanced Study, Princeton.
 08/10: Extremal Combinatorics workshop, Frauenchiemsee, Germany.
 11/09: Topics in Graphs and Hypergraphs conference, IPAM, Los Angeles.
 08/09: Extremal and Probabilistic Combinatorics workshop, BIRS, Banff.
 08/09: Random Structures and Algorithms conference, Poznań.
 09/08: Extremal Combinatorics workshop, University of Birmingham.
 08/08: Fête of Combinatorics and Computer Science, Keszthely, Hungary.
 05/07: One-day colloquium in Combinatorics, Queen Mary, London.
 12/06: Pure Mathematics colloquium, University College London.
 07/06: Czech-Slovak Symposium on Discrete Mathematics, Prague.
 04/06: Additive Combinatorics conference, CRM, Montréal.

WORKSHOPS
ORGANISED

06/18: SIAM Conference on Discrete Mathematics.
 02/18: CMSA Workshop on Probabilistic and Extremal Combinatorics.
 03/17: Simons Workshop on Proving and Using Pseudorandomness.
 01/15: AIM Workshop on Graph Ramsey theory.
 10/14: CRM Workshop on New Horizons in Additive Combinatorics.
 10/14: IMA Workshop on Additive and Analytic Combinatorics.
 06/14: CMI Workshop on Extremal and Probabilistic Combinatorics.
 08/13: CMI Workshop on Developing Exceptional Talent in Mathematics.
 08/13: Oxford Masterclasses in Combinatorics.
 06/12: Mini-session organiser for SIAM Conference on Discrete Mathematics.

EDITORIAL DUTIES

2017- : London Mathematical Society - Editorial Advisory Board.
 2015- : Electronic Journal of Combinatorics - Editor-in-Chief.
 2013- : Journal of Combinatorics - Associate Editor.

COMMITTEE WORK

2016- : Royal Society International Exchanges Committee.
 2015- : British Combinatorial Committee.

RESEARCH
INTERESTS

Extremal and probabilistic combinatorics, particularly extremal graph theory, Ramsey theory, random structures, quasirandomness, discrete geometry and additive combinatorics.