CV: Robert D. Gray

Personal Information

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Career History

2017–present   **Senior Lecturer in Pure Mathematics**
School of Mathematics, University of East Anglia, UK

2013–2017   **Lecturer in Pure Mathematics**
School of Mathematics, University of East Anglia, UK
– Awarded for outstanding performance (special increment), June 2016

2010–2013   **Research Fellow**
Centre of Algebra of the University of Lisbon, Portugal.
I held a personal *FCT Ciência Research Fellowship*.

2008–2010   **EPSRC Postdoctoral Research Fellow**
School of Mathematics and Statistics, University of St Andrews, UK.

2006–2008   **Research Fellow**
School of Mathematics, University of Leeds, UK. Member of the *Leeds Logic Group* working on the EPSRC project *Homogeneous structures, bipartite graphs, and partial orders.*

Visiting positions

2017–present   **Visiting Professor**
Faculty of Science, University of Novi Sad, Serbia
– in the area of Algebra and Mathematical Logic

Academic Degrees

2002–2006   **PhD Pure Mathematics**
School of Mathematics and Statistics, University of St Andrews, UK.
Thesis Title: *A Graph Theoretic Approach to Combinatorial Problems in Semigroup Theory.*

Academic Degrees

1998–2002   **M.Sci Hons. Mathematics, first class (averaged 19.99 out of 20)**
School of Mathematics and Statistics, University of St Andrews, UK.
Class medals for best performance in honours mathematics (2001, 2002).
Arthur Hinton Read Memorial Prize for showing the greatest distinction in senior honours pure mathematics (2002).
Institute of Mathematics and its Applications Prize for outstanding performance in the final year of undergraduate degree (2002).
Carnegie Trust Vacation Scholarship for Training for Algebra Research (Summer 2001).

Grants and Fellowships

- *EPSRC First Grant* (EPSRC Reference: EP/N033353/1). Principal (sole) investigator on EPSRC project *Special inverse monoids: subgroups, structure, geometry, rewriting systems and the word problem* (2016–2018, total FEC value of grant awarded £124,207).

  ○ This project was ranked in first place in the Panel Rank Ordered List of First Grants at the EPSRC Mathematics Prioritisation Panel Meeting, 8th June 2016.

- *EPSRC Postdoctoral Research Fellowship* (EPSRC Reference: EP/E043194/1). Principal (sole) investigator on EPSRC project *Finiteness Conditions and Index in Semigroups and Monoids* (2008–2010, total FEC value of grant awarded £203,056).

- *FCT Ciência Research Fellowship.* A personal fellowship held at the Centre of Algebra of the University of Lisbon, Portugal, 2010–2013.

- *London Mathematical Society Scheme 4 grant*, to fund a one-week research visit of Prof. B. Steinberg of the CNUY, USA to the University of East Anglia (Summer 2019, total value £1000.00).

- *London Mathematical Society Scheme 4 grant*, to fund a one-week research visit of Prof. I. Dolinka of the University of Novi Sad, Serbia to the University of East Anglia (Summer 2016, total value £870.00).

- *London Mathematical Society Undergraduate Research Bursary*, to fund a second year undergraduate student, who carried out a six week research project entitled "The directed geometry of finitely generated amenable semigroups" under my supervision at the University of East Anglia (Summer 2014, total value £1,080.00).

- *British Council (Portuguese/British) Treaty of Windsor Award*, to fund research collaboration between the University of St Andrews and the Centre of Algebra of the University of Lisbon (2009-2010, total value £2,000).

Refereed Research Publications

[1] Undecidability of the word problem for one-relator inverse monoids via right-angled Artin subgroups of one-relator groups. *Inventiones Mathematicae* Vol. 219, 2020, pp. 987–1008.

[2] On cogrowth, amenability and the spectral radius of a random walk on a semigroup (with M. Kambites). *International Mathematics Research Notices (IMRN)* Vol. 2020, No. 12, pp. 3753–3793.

[3] Crystal bases, finite complete rewriting systems, and biautomatic structures for Plactic monoids of types A_n, B_n, C_n, D_n, and G_2 (with A. J. Cain and A. Malheiro). *Journal of Combinatorial Theory, Series A* Vol. 162, 2019, pp. 406–466.

[4] Permutation monoids and MB-homogeneity for graphs and relational structures (with T. Coleman and D. Evans). *European Journal of Combinatorics* Vol. 78, 2019, pp. 163–189.

[5] Universal locally finite maximally homogeneous semigroups and inverse semigroups (with I. Dolinka). *Forum Mathematicum* Vol. 30(4), 2018, pp. 947–971. https://doi.org/10.1515/forum-2017-0074

[6] On finite complete rewriting systems, finite derivation type, and automaticity for homogeneous monoids (with A. J. Cain and A. Malheiro). *Information and Computation* Vol. 255, 2017, pp. 68–93. https://doi.org/10.1016/j.ic.2017.05.003

[7] Amenability and geometry of semigroups (with M. Kambites). *Transactions of the American Mathematical Society* Vol. 369, 2017, pp. 8087–8103. http://dx.doi.org/10.1090/tran/6939

[8] On regularity and the word problem for free idempotent generated semigroups (with I. Dolinka and N. Ruskuc). *Proceedings of the London Mathematical Society* Vol. 114, 2017, pp. 401–432. DOI: 10.1112/plms.12011

[9] Diagram monoids and Graham–Houghton graphs: idempotents and generating sets of ideals (with J. East). *Journal of Combinatorial Theory, Series A* Vol. 146, 2017, pp. 63–128.

[10] Motzkin monoids and partial Brauer monoids (with I. Dolinka and J. East). *Journal of Algebra* Vol. 471, 2017, pp. 251–298.

[11] Automorphism groups of countable algebraically closed graphs and endomorphisms of the random graph (with I. Dolinka, J. D. McPhee, J. D. Mitchell, and M. Quick). *Mathematical Proceedings of the Cambridge Philosophical Society* Vol. 160, 2016, pp. 437–462.

[12] Ends of Semigroups (with S. Craik, V. Kilibarda, J. D. Mitchell and N. Ruskuc) *Semigroup Forum* Vol. 93, 2016, pp. 330–346.

[13] Rewriting systems and biautomatic structures for Chinese, hypoplactic, and Sylvester monoids (with A. J. Cain and A. Malheiro). *International Journal of Algebra and Computation* Volume 25, no. 1-2, February & March 2015. DOI: 10.1142/S0218196715400044.

[14] Finite Gröbner–Shirshov bases for Plactic algebras and biautomatic structures for Plactic monoids (with A. J. Cain and A. Malheiro). *Journal of Algebra* Vol. 423, 2015, pp. 37–53.

[15] A strong geometric hyperbolicity property for directed graphs and monoids (with M. Kambites). *Journal of Algebra* Vol. 420, 2014, pp. 373–401.

[16] The minimal number of generators of a finite semigroup. *Semigroup Forum* Vol. 89, 2014, pp. 135–154.

[17] Homotopy bases and finite derivation type for subgroups of monoids (with A. Malheiro). *Journal of Algebra* Vol. 410, 2014, pp. 53–84.

[18] Countable locally 2-arc-transitive bipartite graphs (with J. K. Truss). *European Journal of Combinatorics* Vol. 39, 2014, pp. 122–147

[19] On residual finiteness of monoids, their Schützenberger groups and associated actions (with N. Ruskuc). *Journal of Algebra* Vol. 407, 2014, pp. 21–45

[20] Maximal subgroups of free idempotent generated semigroups over the full linear monoid (with I. Dolinka), *Transactions of the American Mathematical Society* Vol. 366, 2014, pp. 419–455

[21] Ideals and finiteness conditions for subsemigroups (with V. Maltcev, J. D. Mitchell and N. Ruskuc). *Glasgow Mathematical Journal* Vol. 56, 2014, pp. 65–86

[22] Quasi-isometry and finite presentations for left cancellative monoids (with M. Kambites). *International Journal of Algebra and Computation* Vol. 23, 2013, pp. 1099–1114

[23] Groups acting on semimetric spaces and quasi-isometries of monoids (with M. Kambites), *Transactions of the American Mathematical Society* Vol. 365, 2013, pp. 555–578

[24] Homotopy bases and finite derivation type for Schutzenberger groups of monoids (with A. Malheiro and S. J. Pride), *Journal of Symbolic Computation* Vol. 50, 2013, pp. 50–78.

[25] On maximal subgroups of free idempotent generated semigroups (with N. Ruskuc), *Israel Journal of Mathematics* Vol. 189, 2012, pp. 147–176.

[26] Green index in semigroups: generators, presentations and automatic structures (with A. J. Cain and N. Ruskuc), *Semigroup Forum* Vol. 85, 2012, pp. 448–476.

[27] Set-homogeneous directed graphs (with D. Macpherson, C. Praeger and G. Royle), *Journal of Combinatorial Theory, Series B*, Vol. 102, 2012, pp. 474–520.

[28] Maximal subgroups of free idempotent generated semigroups over the full transformation monoid (with N. Ruskuc), *Proceedings of the London Mathematical Society* (3) Vol. 104, 2012, pp. 997–1018.

[29] A Svarc–Milnor lemma for monoids acting by isometric embeddings (with M. Kambites), *International Journal of Algebra and Computation*, Vol. 21, 2011, pp. 1135–1147.

[30] Presentations of inverse semigroups, their kernels and extensions (with C. Carvalho and N. Ruskuc), *Journal of the Australian Mathematical Society*, Vol. 90, 2011, pp. 289–316.

[31] Homological finiteness properties of monoids, their ideals and maximal subgroups (with S. J. Pride), *Journal of Pure and Applied Algebra*, Vol. 215, 2011, pp. 3005–3024.

[32] On properties not inherited by monoids from their Schutzenberger groups (with A. Malheiro and S. J. Pride). *Information and Computation*, Vol. 209, 2011, pp. 1120–1134.

[33] Generators and relations for subsemigroups via boundaries in Cayley graphs (with N. Ruskuc), *Journal of Pure and Applied Algebra*, Vol. 215, 2011, pp. 2761–2779.

[34] Locally-finite connected-homogeneous digraphs (with R. Möller), *Discrete Mathematics*, Vol. 311, 2011, pp. 1497–1517.

[35] Finite complete rewriting systems for regular semigroups (with A. Malheiro), *Theoretical Computer Science*, Vol. 412, 2011, pp. 654–661.

[36] Countable connected-homogeneous graphs (with D. Macpherson), *Journal of Combinatorial Theory, Series B*, Vol. 100, 2010, pp. 97–118.

[37] Cycle-free partial orders and ends of graphs (with J. K. Truss), *Mathematical Proceedings of the Cambridge Philosophical Society* , Vol. 146, 2009, pp. 535–550.

[38] On residual finiteness of direct products of algebraic systems (with N. Ruskuc), *Monatshefte für Mathematik*, Vol. 158, 2009, pp. 63–69.

[39] k-CS-transitive infinite graphs, *Journal of Combinatorial Theory, Series B*, Vol. 99, 2009, pp. 378–398.

[40] Construction of some countable one-arc transitive bipartite graphs (with J. K. Truss), *Discrete Mathematics*, Vol. 308, 2008, pp. 6392–6405.

[41] Green index and finiteness conditions for semigroups (with N. Ruskuc), *Journal of Algebra*, Vol. 320, 2008, pp. 3145–3164.

[42] Construction of some uncountable 2-arc-transitive bipartite graphs (with M. Droste and J. K. Truss), *Order*, Vol. 25, 2008, pp. 349–357.

[43] Hall's condition and idempotent rank of ideals of endomorphism monoids, *Proceedings of the Edinburgh Mathematical Society*, Vol. 51, 2008, pp. 1–16.

[44] Largest subsemigroups of the full transformation monoid (with J. D. Mitchell), *Discrete Mathematics*, Vol. 308, 2008, pp. 4801–4810.

[45] Idempotent rank in endomorphism monoids of finite independence algebras, *Proceedings of the Royal Society of Edinburgh: Section A Mathematics*, Vol. 137A, 2007, pp. 303–331.

[46] Generating sets of completely 0-simple semigroups (with N. Ruskuc), *Communications in Algebra*, Vol. 33, 2005, pp. 4657–4678.

Submitted Papers

[47] Free inverse monoids are not FP_2 (with B. Steinberg). Submitted, 5 pages. https://arxiv.org/abs/2002.07690.

[48] Algorithmic properties of inverse monoids with hyperbolic and tree-like Schützenberger graphs (with P. Silva & N. Szakacs). Submitted, 31 pages. https://arxiv.org/abs/1912.00950.

[49] New results on the prefix membership problem for one-relator groups (with I. Dolinka). Submitted, 49 pages. https://arxiv.org/abs/1911.06571.

[50] A Lyndon's Identity theorem for one-relator monoids (with B. Steinberg). Submitted, 53 pages. https://arxiv.org/abs/1910.09914.

[51] On equations and first-order theory of one-relator monoids (with A. Garreta). Submitted, 27 pages. https://arxiv.org/abs/1908.00098.

[52] Topological finiteness properties of monoids. Part 2: special monoids, one-relator monoids, amalgamated free products, and HNN extensions (with B. Steinberg). Submitted, 44 pages. https://arxiv.org/abs/1805.03413v2.

[53] Topological finiteness properties of monoids. Part 1: Foundations (with B. Steinberg). Submitted, 59 pages. https://arxiv.org/abs/1706.04387.

Papers in Preparation

[54] On units of special and one-relator inverse monoids (with N. Ruskuc). In preparation.

Selected Talks and Invited Participations

- Invited online talk at Western Sydney University Abend Seminar, August 2020.
- Invited online talk at North British Semigroups and Applications Meeting, July 2020.
- Invited speaker at the International Conference on 'Semigroups and connections with other fields' at Cochin University of Science and Technology (CUSAT) in Kochi, Kerala, India, December 9 -11, 2019.
- Algebra, Logic, and Algorithms Seminar, University of Leeds, October 2019.
- Algebra Seminar, Aberdeen University, October 2019.
- Invited talk at the LMS Graduate Student Meeting, June 2019.
- Invited speaker at "Semigroups and Groups, Automata, Logics, 10th-13th June 2019, Cremona Italy.
- Invited seminar, York, 6th March 2019.
- Invited talk at NBSAN, York, 10th January 2019.
- Pure Mathematics Seminar, Newcastle University, October 2018.
- Invited participation and talk at the ICMS research group: "Solving equations in one-relator groups/semigroups (solvability issues, algorithms, one-variable equations etc) and more specifically Baumslag-Solitar groups" organised by Laura Ciobanu, at the ICMS in Edinburgh in the week of Sept. 3-7, 2018.
- Invited talk at a conference in honour of the birthday of Prof Dugald MacPherson, ICMS Edinburgh, September 2018.
- Invited three-lecture minicourse at the "LMS Undergraduate Summer School 2018', University of Glasgow, July 2018.
- Algebra Seminar, Heriot-Watt University, June 2018.
- Invited talk at the international conference in honour of the birthday of Prof John Rhodes, Bar-Ilan, Israel, June 2018.
- SLADIM+ Seminar for Logic, Algebra and Discrete Mathematics, University of Novi Sad, Serbia, February 2018.
- Geometry and Topology Seminar, University of Warwick, December 2017.
- Invited talk at a conference in honour of 70th birthday of Prof. J. K. Truss, University of Leeds, September 10th-Septmber 12th, 2017.

- Invited speaker at "All Kinds of Mathematics Reminds me of You", Conference to celebrate the 70th Anniversary of Peter J Cameron, Gathering excellence where Cameron excels: Combinatorics, Groups, Model Theory, Number Theory, Semigroups, Statistics, and more..., Lisbon, 24-27 July 2017.
- Invited three-lecture minicourse at the "LMS Undergraduate Summer School 2017", University of Manchester, July 2017.
- Pure Maths Colloquium, University of St Andrews, April 2017.
- Algebra Seminar, University of Lisbon, March 2017.
- Algebra and Logic Seminar, Universidade Nova de Lisboa, Lisbon, March 2017.
- Algebra Seminar, University of York, York, February 2017.
- Algebra Seminar, University of Colorado Boulder Algebra Seminar, Boulder, USA, February 2017.
- Invited talk at "Special Session on Recent Trends in Semigroup Theory" at the Fall Western Sectional Meeting of American Mathematical Society, University of Denver, Denver, CO on October 8-9, 2016.
- Invited four-lecture minicourse at *Escola de Álgebra, XXIV Brazilian Algebra Meeting*, Diamantina, Brazil 31st July–5th August, 2016.
- Invited speaker at *CSA 2016, International Conference on Semigroups and Automata* (in celebration of the 60th birthdays of Prof. Jorge Almeida and Prof. Gracinda Gomes), Lisbon, 20–24th June 2016.
- Invited talk at *North British Semigroups and Applications Meeting*, University of York, May 2016.
- Algebra seminar, University of Manchester, April 2016
- Algebra and Logic Seminar, Universidade Nova de Lisboa, Lisbon, April 2016.
- Invited talk at the *Open University Winter Combinatorics Meeting*, The Open University, Milton Keynes, January 2016.
- Invitation to participate and give a one-hour talk at the workshop *Homogeneous Structures*, Banff International Research Station, Banff, Canada, November 2015.
- Invitation to participate and give a one-hour talk at the LMS Durham Research Symposium *Permutation groups and transformation semigroups*, Durham University, July 2015.
- Invited speaker at *The Algebraic Theory of Semigroups and Applications* special session at a joint meeting of the American, European and Portuguese Mathematical Societies, Porto, Portugal, June 2015.
- Invited talk, and member of the Scientific Committee for, the international conference *AAA90, 90th Workshop on General Algebra - 90. Arbeitstagung Allgemeine Algebra*, Novi Sad, Serbia, June 2015.
- Invited talk at *North British Semigroups and Applications Meeting*, University of St Andrews, April 2015.
- Algebra and Logic Seminar, Universidade Nova de Lisboa, Lisbon, January 2015.
- Invited participation at *Algebraic and Model Theoretical Methods in Constraint Satisfaction*, Banff International Research Station, Banff, Canada, November 2014.
- Logic Seminar, University of Leeds, November 2014.
- Algebra Seminar, University of Lisbon, June 2014.

- Pure Mathematics Seminar, University of York, May 2014.
- Algebra Colloquium, University of Linz, Austria, April 2014.
- Pure Mathematics Seminar, University of Essex, March 2014.
- Invited talk at *North British Semigroups and Applications Meeting*, York, November 2013.
- Geometry and Topology Seminar, University of Warwick, October 2013
- Invited speaker at the international conference *Geometric, Combinatorial & Dynamics Aspects of Semigroups and Groups, On the occasion of the 60th birthday of Stuart Margolis Bar-Ilan*, Israel, June 2013.
- Invited speaker at the international conference *The 4th Novi Sad Algebraic Conference*, Novi Sad, June 2013.
- Invited speaker at *Semigroup Representations*, ICMS, Edinburgh April 2013.
- Invited speaker at *Workshop on Semigroups (To remember John M. Howie on the occasion of his 76th birthday)*, University of Lisbon, May 2012.
- Invited talk at Semigroups and Applications, Uppsala, Sweden, August 2012.
- Pure Mathematics Seminar, University of York, May 2012.
- Invited speaker at the international conference *AAA workshop in general algebra and related fields*, University of Novi Sad, Serbia, March 2012.
- Centre of linear and combinatorial structures seminar, (CELC) University of Lisbon, February 2012.
- Semigroups, automata and languages seminar, (CAUL) University of Lisbon, November 2011.
- Pure Mathematics Colloquium, University of Novi Sad, Serbia, November 2011.
- Invited talk at *North British Semigroups and Applications Meeting*, University of Manchester, August 2011.
- Invited speaker at the international conference *Groups and Semigroups: Interactions and Computations*, University of Lisbon, July 2011.
- Invited talk at *LMS Northern Regional Meeting and Workshop on Homogeneous Structures*, University of Leeds, July 2011.
- Pure Mathematics Colloquium, University of Novi Sad, Serbia, March 2011.
- Pure Mathematics Colloquium, University of Essex, January 2011.
- Semigroups, automata and languages seminar, Univeristy of Lisbon, November 2010.
- Semigroups, automata and languages seminar, University of Porto, October 2010.
- Contributed talk at *International Conference on Geometric and Combinatorial Methods in Group Theory and Semigroup Theory*, University of Nebraska-Lincoln, USA, May 2009.
- Invited talk at *North British Semigroups and Applications Meeting*, St Andrews, April 2009.
- Invited talk at the international conference *Groups and Infinite Graphs*, Erwin Schrodinger International Institute, Vienna, Austria, September 2008.
- Contributed talk at *ROGICS - International Conference on Relations, Orders and Graphs: Interaction with Computer Science*, Mahdia, Tunisia, May 2008.
- Invited talk at *Algebra Workshop*, Centre of Algebra of the University of Lisbon, April 2008.
- Invited talk at *Splinter Group on Semigroup Theory, 60th British Mathematical Colloquium*, University of York, March 2008.

- Invited talk at *International Conference on Infinite Graph Theory*, Banff International Research Station, Canada, October 2007.
- Invited talk at *Combinatorics of Arc-Transitive Graphs and Partial Orders*, University of Leeds, August 2007.
- Contributed talk at *21st British Combinatorial Conference*, University of Reading, July 2007.
- Invited talk at *One-day meeting of the Cambridge/Leeds/Norwich Set Theory Group (CAMELEON)*, University of Leeds, June 2007.
- Model Theory Seminar, University of Leeds, May 2007.
- Leeds Algebra Seminar, University of Leeds, January 2007.
- Glasgow Algebra Seminar, University of Glasgow, November 2006.
- MAXIMALS Algebra Seminar, University of Edinburgh, November 2006.
- Model Theory Seminar, University of Leeds, May 2006.
- Invited talk at *Splinter Group on Semigroup Theory, 58th British Mathematical Colloquium*, University of Newcastle, April 2006.
- Contributed talk at *International Conference on Semigroups and Languages*, University of Lisbon, July 2005.
- Contributed talk at *PoPMiNE Postgraduate Conference in Pure Mathematics*, University of Newcastle, June 2004.
- Contributed talk at *Splinter Group on Group Theory, 56th British Mathematical Colloquium*, Queens University Belfast, March 2004.

Teaching

Teaching qualifications

2015	**Fellow of the Higher Education Academy**
2013–2015	**Postgraduate Certificate in Higher Education Practice**
	The University of East Anglia, UK.

Modules completed: Module 1 (2013/14) Exploring the academic role, Module 2 (2014/15) Evaluating teaching, Module 3 (2014/15) Academic practice and technology.

Teaching award nominations

- 2017: Nominated for a *Transforming Education Award* for the category *Inspiring Teaching*.
- 2015: Shortlisted for the *Transforming Teaching Award*, in the category *Inspiring Teaching* (Teaching which inspires students to get involved in their education, either through student representation or through shaping their own learning and their degree.), 2015. This awards programme is organised by UEA SU, and staff are nominated, shortlisted and awarded by students in recognition of outstanding teaching and support at UEA.
- 2014: Nominated for an *Excellence in Teaching Award*, University of East Anglia, 2014.

Lecturing

At the University of East Anglia I have lectured the following modules:

- *Further Linear Algebra* Spring 2021. A 2nd undergraduate module. I am module organiser for this module.
- *Mathematical Skills* Autumn 2020. A 1st undergraduate module. I am module organiser for this module.
- *Algeba I: Group theory* Spring 2020, Spring 2021. I am module organiser for this module in 2020-2021.
- *Galois Theory and Galois Theory with Advanced Topics* (Spring 2020); a 3rd/4th year undergraduate course. I was module organiser.
- *Ring Theory* (Spring 2013, 2014), a 2nd year undergraduate module; I was module organiser.
- *Sets, Numbers and Proof* (Autumn 2013, 2014, 2015, 2017), a 1st year undergraduate course. I was module organiser for this module in each of these years (apart from 2017);
- *Semigroup Theory and Semigroup Theory with Advanced Topics* (Spring 2015, Autumn 2016, Autumn 2018); a 3rd year undergraduate course which I designed entirely myself. In 2015, this module was chosen by a large number of students (79 + 9 advanced topics students). I was module organiser for this module. I was module organiser.
- *Linear Algebra* (Spring 2016), a 1st year undergraduate course. I was the module organiser for this module.

Lectured the following final year undergraduate course in group theory at the University of Leeds.

- *Groups and Symmetry* (Autumn 2007)

Tutoring, advising, and pastoral care

Have tutored, and run problems classes, for numerous undergraduate courses in mathematics, at the University of East Anglia, University of Leeds, University of St Andrews, and the University of Lisbon (including giving classes in Portuguese). I have also acted as advisor / personal tutor for numerous undergraduate students both at the University of Leeds (Spring 2007 and Autumn 2007) and the University of East Anglia (2013-present). This involved providing both academic guidance and pastoral care.

Research Supervision

- Supervised Thomas Coleman who received his PhD from the University of East Anglia passing his viva in June 2017 (external examiners, Prof. Peter Cameron and Dr Yann Peresse).
  - Tom is now working as Associate Lecturer in Mathematics at the University of St Andrews.
- Currently supervising the PhD student Diane Lubbock at the University of East Anglia.
- Currently supervising the PhD student Carl-Fredrik Nyberg Brodda at the University of East Anglia (funded by a UEA SCI competition funded studentship).

- I have supervised 9 undergraduate and 6 MMTH-level projects at the University of East Anglia between 2013 and 2019. One of the MMTH projects was in Natural Sciences, which has additional components like blog writing and assessing. I was on study leave in the spring of 2016-17, 2017-18, and 2018-19, so did not supervise MMTH projects then. I supervised an MMTH project on geometric group theory in the academic year 2019-2020, and also one undergraduate project on infinite graph theory. I will be supervising an MMTH project on one-relator groups in 2020-2021 (this number is not yet included in the count above).
- Obtained funding for and supervised a London Mathematical Society Undergraduate Research Bursary project on Amenability at the University of East Anglia, Summer 2014.
- Devised an undergraduate summer project "Synchronizing automata and the Cerny conjecture" at the University of East Anglia, Summer 2015. I supervised a student who worked on this project. This student has gone on to study for a PhD at the University of Manchester.
- Assisted with the supervision of two PhD students, Simon Craik and Jay McPhee, at the university of St Andrews, 2008–2010.

Internal Examination

- Internal examiner for for PhD candidate George Witty (UEA, 2020).
- Internal examiner for for PhD candidate Andrew Langworthy (UEA, 2018).

External Examination

- External examiner for PhD candidate Emma McDougall (Heriot-Watt University, 2018).
- External examiner for PhD candidate Bruno Federici (University of Warwick, 2017).
- External examiner for PhD candidate Chwas Ahmed (University of Leeds, 2016).
- External examiner for PhD candidate Dandan Yang (University of York, 2014).
- External examiner for PhD candidate Yanhui Wang (University of York, 2012).
- External examiner for PhD candidate Imtiaz Ahmad (University of Essex, 2011).

Editorial Work, Reviewing and Panel Membership

- Member of the Editorial Board of *The International Journal of Algebra and Computation (IJAC)*, 2020-present.
- EPSRC Full College Member (2017-present).
- EPSRC Peer Review Associate College Member (2016-2017).
- Grant proposal reviewer for EPSRC.
  - I have reviewed numerous Standard Proposals and also EPSRC Fellowship Proposals.
  - I have been invited to be a member of the MTH prioritisation panel in 2017 (but I was not able to attend because of other commitments).
- Reviewer and panel member for *EPSRC New Horizons* call, summer and autumn 2020.
- Participant at the EPSRC ICMS virtual Big Ideas Workshop , July 2020.
- Referee for journals including: *Transactions of the American Mathematical Society*, *Proceedings of the London Mathematical Society*, *Israel Journal of Mathematics*, *Journal of the*

Institute of Mathematics of Jussieu, Algebras and Representation Theory, Journal of Combinatorial Theory, Series A, Discrete Analysis, Proceedings of the American Mathematical Society, Canadian Journal of Mathematics, Forum Mathematicum, Journal of Algebra, AMS - Contemporary Mathematics, Demonstratio Mathematica, International Journal of Algebra and Computation, Glasgow Mathematical Journal, Journal of the Australian Mathematical Society, Linear Algebra and its Applications, Combinatorica, Journal of Graph Theory, Designs Codes and Cryptography, Order, European Journal of Combinatorics, Discrete Mathematics, Communications in Algebra, Australasian Journal of Combinatorics, Semigroup Forum, Ars Combinatoria, Advances in Pure and Applied Mathematics, and *Publicationes Mathematicae Debrecen.*

- Article reviewer for *Mathematical Reviews* and *MathSciNet*.

Event Organisation

- Organised a three-day conference WOW – Winter One-relator Workshop at UEA in January 2018 (9th -11th) as part of my EPSRC First Grant project with 11 invited speakers from USA, Israel, Hungary, Serbia, and the UK.
- Organised the event "Tomorrow's Mathematicians Today at UEA", Thursday 11th February 2016, talks by students who were invited to speak at the event http://mathsoc.cms.gre.ac.uk/tmt/.
- Organised a two-day meeting of the North British Semigroups and Applications Network (NBSAN) at the University of East Anglia, 14th–15th April 2014.
- Organiser of the Semigroups, Automata and Languages seminar (CAUL) University of Lisbon, Spring 2012.

Professional Affiliations

- Member of the London Mathematical Society.
- Member of the Edinburgh Mathematical Society.

Referees

Available on request.