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## Heilbronn Fellows Research Papers

A complete list of papers written by Heilbronn Research Fellows since 2014.

### 2021

**Demi Allen**, Felipe A. Ramírez. Independence inheritance and Diophantine approximation for systems of linear forms (2021). View pdf on [arXiv](#)

**Demi Allen**, Baowei Wang. A note on weighted simultaneous Diophantine approximation on manifolds (2021). View pdf on [arXiv](#)

\*\* **Demi Allen**, Balázs Bárány. On the Hausdorff measure of shrinking target sets on self-conformal sets. *Mathematika* (2021). View pdf on [doi:10.1112/mtk.12106](https://doi.org/10.1112/mtk.12106)

**Emma Bailey**, Jon Keating. Maxima of log-correlated fields: some recent developments (2021). View pdf on [arXiv](#)

\*\* Eli Amzallag, Louis-Pierre Arguin, **Emma Bailey**, Kelvin Hui, Rajesh Rao. Evidence of random matrix corrections for the large deviations of Selberg's central limit theorem (2021). View pdf on [arXiv](#)

**Emma Bailey**, Jon Keating. Moments of moments and branching random walks. *Journal of Statistical Physics* (2021). View pdf on [doi:10.1007/s10955-020-02696-9](https://doi.org/10.1007/s10955-020-02696-9)

**Emma Bailey**, Jon Keating. On the moments of the moments of  $\zeta(1/2+it)$ . *Journal of Number Theory* (2021). View pdf on [arXiv](#)

**Ben Barber**. Small sums of five roots of unity (2021). View pdf on [arXiv](#)

\*\* **Matthew Bisatt**. Root number of the Jacobian of  $y^2=x^p+a$  (2021). View pdf on [arXiv](#)

**Matthew Bisatt**, Tim Dokchitser. Tame torsion and the tame inverse Galois problem. *Mathematische Annalen* (2021). View pdf on [arXiv](#)

Alex J. Best, Alexnader Betts, **Matthew Bisatt**, Raymond van Bommel, Vladimir Dokchitser, Omri Faraggi, Sabrina Kunzweiler, Celine Maistret, Adam Morgan, Simone Muselli, Sarah Nowell. A user's guide to the local arithmetic of hyperelliptic curves (2021). Accepted: *Bulletin of the London Mathematical Society*. View pdf on [arXiv](#)

**Matthew Bisatt**. Clusters, inertia, and root numbers (2021). View pdf on [arXiv](#)

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\*\* Highlighted Papers

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**Kieran Calvert**, Marcelo De Marino. Dirac operator of the Dunkl angular momentum algebra (2021). View pdf on [arXiv](#)

**Jennifer Chakravarty**, Oliver Johnson, Robert Piechocki. Bounds on eavesdropper performance for a MIMO-NOMA downlink scheme (2021). Accepted: IET Communications. View pdf on [arXiv](#)

**Samuel M. Corson**. Strongly bounded locally indicable groups. *Bulletin of the Australian Mathematical Society* (2021). View pdf on [arXiv](#)

**Samuel M. Corson**. Bi-orders do not arise from total orders. *Canadian Mathematical Bulletin* (2021). View pdf on [arXiv](#)

**Samuel M. Corson**. Jónsson groups of various cardinalities (2021). View pdf on [arXiv](#)

Oleg Bogopolski, **Samuel M. Corson**. Abstract homomorphisms from some topological groups to acylindrically hyperbolic groups. *Mathematische Annalen* (2021). View pdf on [arXiv](#)

\*\* **Edward Crane**, Gene Kopp. Rubel's problem: from Hayman's list to the Chabauty method. *London Mathematical Society newsletter, issue 492* (2021). Feature article. [View pdf](#).

\*\* **Simon Crawford**. Superpotentials and Quiver agebras for semisimple Hopf actions (2021). View pdf on [arXiv](#)

Neil Dummigan, **Dan Fretwell**. Automorphic forms for some even unimodular lattices. *Abh. Math. Sem. Univ. Hamburg* (2021). View pdf on [arXiv](#) – [doi:10.1007/s12188-021-00231-5](https://doi.org/10.1007/s12188-021-00231-5)

\*\* Timothy C. Burness, Robert M. Guralnick, **Scott Harper**. The spread of a finite group. *Annals of Mathematics* (2021). View pdf on [arXiv](#)

**Scott Harper**. Flexibility in generating sets of finite groups (2021) (Will be on the arXiv soon).

**Scott Harper**. The spread of almost simple classical groups. Part of the **Lecture Notes in Mathematics** book series (Springer 2021). View pdf on [doi:10.1007/978-3-030-74100-6](https://doi.org/10.1007/978-3-030-74100-6)

\*\* **Joshua Jackson**, Victoria Hoskins. Quotients by parabolic groups and moduli of unstable objects (2021). (Will be on the arXiv in the next month)

\*\* **Luke Jeffreys**, Carlos Matheus. Non-planarity of  $SL(2, \mathbb{Z})$ -orbits of origamis in  $H(2)$  (2021). View pdf on [arXiv](#)

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**Luke Jeffreys.** Single-cylinder square-tiled surfaces and the ubiquity of ratio-optimising pseudo-Anosovs. *Transactions of the American Mathematical Society* (2021). View pdf on [arXiv](#)

**Adam Jones.** Affinoid Dixmier modules and the deformed Dixmier-Moeglin equivalence. *Algebras and Representation Theory* (2021). View pdf on [doi:10.1007/s10468-021-10084-4](https://doi.org/10.1007/s10468-021-10084-4)

\*\* **Adam Jones.** Primitive ideals in rational, nilpotent Iwasawa algebras. *Advances in Mathematics* (2021). View pdf on [arXiv](#)

**Nick G. Jones, Noah Linden.** Integrable spin chains and the Clifford group (2021). View pdf on [arXiv](#)

**Nick G. Jones, Ruben Verresen.** Exact correlations in topological quantum chains (2021). View pdf on [arXiv](#)

**Nick G. Jones, Julian Bibo, Bernhard Jobst, Frank Pollmann, Adam Smith, Ruben Verresen.** Skeleton of matrix-product-state-solvable models connecting topological phases of matter. *Physical Review Research* (2021). View pdf on [arXiv](#)

\*\* Edward Crane, **Gene Kopp.** Rubel's problem: from Hayman's list to the Chabauty method. *London Mathematical Society newsletter, issue 492* (2021). Feature article. [View pdf](#).

**Benjamin Lees, Lorenzo Taggi.** Exponential decay of transverse correlations for O(N) spin systems and related models. *Probability Theory and Related Fields* (2021). View pdf on [doi:10.1007/s00440-021-01053-5](https://doi.org/10.1007/s00440-021-01053-5)

**Benjamin Lees, Lorenzo Taggi.** Site-monotonicity properties for reflection positive measures with applications to quantum spin systems. *Journal of Statistical Physics* (2021). View pdf on [doi:10.1007/s10955-021-02778-2](https://doi.org/10.1007/s10955-021-02778-2)

Volker Betz, Johannes Ehlert, **Benjamin Lees, Lukas Roth.** Explicit phase conditions for random loop models on trees using exploration schemes (2021). Accepted: *Electronic Journal of Probability*.

\*\* **Justin McInroy, Sergey Shpectorov.** From forbidden configurations to a classification of some axial algebras of Monster type (2021). View pdf on [arXiv](#)

**Justin McInroy, Sergey Shpectorov.** Split spin factor algebras (2021). View pdf on [arXiv](#)

**Justin McInroy, Alonso Castillo-Ramirez.** Miyamoto groups of code algebras. *Journal of Pure Applied Algebra* (2021). View pdf on [arXiv](#)

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Bryan Chen, Robert Connelly, **Anthony Nixon**, Louis Theran. Universal rigidity on the line, point order (2021). View pdf on [arXiv](#)

**Anthony Nixon**, Bernd Schulze and Walter Whiteley. Rigidity through a projective lens (2021). View pdf on [researchgate/publication/350838924](https://researchgate/publication/350838924)

\*\* Daniel Irving Bernstein, Sean Dewar, Steven J. Gortler, **Anthony Nixon**, Meera Sitharam, Louis Theran. Maximum likelihood thresholds via graph rigidity (2021). View pdf on [arXiv](#)

Sean Dewar, **Anthony Nixon**. Generalised rigid body motions in non-Euclidean planes with applications to global rigidity (2021). View pdf on [arXiv](#)

\*\* Tamara Kohler, **Stephen Piddock**, Johannes Bausch, Toby Cubitt. General conditions for universality of Quantum Hamiltonians (2021). View pdf on [arXiv](#)

\*\* Nick Whiteley, Annie Gray, **Patrick Rubin-Delanchy**. Matrix factorisation and the interpretation of geodesic distance. Accepted: *NeurIPS 2021*. View pdf on [arXiv](#)

Ian Gallagher, Andrew Jones, **Patrick Rubin-Delanchy**. Spectral embedding for dynamic networks with stability guarantees. Accepted: *NeurIPS 2021*. View pdf on [arXiv](#)

Alexander Modell, **Patrick Rubin-Delanchy**. Spectral clustering under degree heterogeneity: a case for the random walk Laplacian (2021). View pdf on [arXiv](#)

Louis G Jensen, Tjun Yee Hoh, View ORCID Profile David J Williamson, Juliette Griffié, Daniel Sage, **Patrick Rubin-Delanchy**, Dylan M Owen. Correction of multiple-blinking artefacts in photoactivated localisation microscopy (2021). View pdf on [doi:10.1101/2021.03.24.436128](https://doi.org/10.1101/2021.03.24.436128)

\*\* **Jason Semeraro**, Radha Kessar and Gunter Malle. The principal block of a  $Z\ell$ -spets and Yokonuma type algebras (2021). View pdf on [arXiv](#)

Edin Husić, Georg Loho, **Benjamin Smith**, László A. Végh. On complete classes of valuated matroids (2021). View pdf on [arXiv](#)

**Calum Spicer**, Roberto Svaldi. Effective generation for foliated surfaces: results and applications (2021). View pdf on [arXiv](#)

Paolo Cascini, **Calum Spicer**. Minimal Model Program for co-rank one foliations. *Inventiones Mathematicae* (2021)

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**Louise Sutton**, Daniel Tubbenhauer, Paul Wedrich, Jieru Zhu. SL2 tilting modules in the mixed case (2021). View pdf on [arXiv](#)

Robert Muth, Liron Speyer, **Louise Sutton**. Decomposable Specht modules indexed by bihooks II (2021). Accepted: *Algebras and Representation Theory*. View pdf on [arXiv](#)

Christine Bessenrodt, Chris Bowman, **Louise Sutton**. Kronecker positivity and 2-modular representation theory. (2021) Accepted: *Transactions of the American Mathematical Society*. View pdf on [arXiv](#)

\*\* **Samuel Tickle**, Idris Eckley, Paul Fearnhead. A computationally efficient, high-dimensional multiple changepoint procedure with application to global terrorism incidence. *Journal of the Royal Statistical Society, Series A* (2021). View pdf on [doi:10.1111/rssa.12695](https://doi.org/10.1111/rssa.12695)

\*\* Paul Seidel, **Nicholas Wilkins**. Covariant constancy of quantum Steenrod operations (2021). View pdf on [arXiv](#)

**Nicholas Wilkins**. Quantum Steenrod squares and the equivariant pair-of-pants in symplectic cohomology. *Journal of Topology and Analysis* (2021). View pdf on [doi:10.1142/S1793525321500369](https://doi.org/10.1142/S1793525321500369)

\*\* **James Williams**. On finite p-groups with powerful subgroups (2021). View pdf on [arXiv](#)

## 2020

\*\* **Demi Allen**, Sam Chow, Han Yu. Dyadic approximation in the middle-third cantor set (2020). View pdf on [arxiv:2005.09300](https://arxiv.org/abs/2005.09300)

**Demi Allen**, **Edward Crane**, **Christopher Doris**, David Abrahams et al. Guiding principles for unlocking the workforce: What can Mathematics tell us? (2020). Working paper from ICMS/VKEMS Virtual Study Group: Mathematical Principles for Unlocking the Workforce. [View pdf on icms](#)

\*\* **Ben Barber**, Joshua Erde, Peter Keevash, Alexander Roberts. Isoperimetric stability in lattices (2020). View pdf on [arxiv:2007.14457](https://arxiv.org/abs/2007.14457)

**Ben Barber**, Stefan Glock, Daniela Kühn, Alan Lo, Richard Montgomery, Deryk Osthus. Minimalist designs. *Random Structures and Algorithms* 57 (2020) 47-63. View pdf on [arxiv:1808.06956](https://arxiv.org/abs/1808.06956)

**Benjamin Barrett**. Local simple connectedness of boundaries of hyperbolic groups (2020). View pdf on [arxiv:2004.11650](https://arxiv.org/abs/2004.11650)

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**Chris Birkbeck.** On the  $p$ -adic Langlands correspondence for algebraic tori. *Journal de Théorie des Nombres de Bordeaux* 32, 1 (2020) 133-158. View pdf on [arxiv:1811.04819](https://arxiv.org/abs/1811.04819)

**Chris Birkbeck.** 2-adic slopes of Hilbert modular forms over  $\mathbb{Q}(\sqrt{5})$ . *Bulletin of the London Mathematical Society* 52, 4 (2020) 716-729. View pdf on [arxiv:1811.04799](https://arxiv.org/abs/1811.04799)

**\*\* Jonathan Bober, Alex Best, Andrew Booker, Edgar Costa, John Cremona, Maarten Derickx, David Lowry-Duda, Min Lee, David Roe, Andrew Sutherland, John Voight.** Computing classical modular forms (2020). View pdf on [arxiv:2002.04717](https://arxiv.org/abs/2002.04717)

**\*\* Andrew Booker, Min Lee, Andreas Strömbergsson.** Twist-minimal trace formulas and the Selberg eigenvalue conjecture. *Journal of the London Mathematical Society* 2, 102 (2020) 1067-1134. View pdf on [arxiv:1803.06016](https://arxiv.org/abs/1803.06016)

**\*\* Gavin Brown, Enrico Fatighenti.** Hodge numbers and deformations of Fano 3-folds. *Documenta Mathematica* 25 (2020) 267-307. View pdf on [doi:10.25537/dm.2020v25.267-307](https://doi.org/10.25537/dm.2020v25.267-307)

**\*\* Kieran Calvert.** Compact Schur-Weyl duality: real Lie groups and the cyclotomic Brauer algebra (2020). View pdf on [arxiv:2003.09319](https://arxiv.org/abs/2003.09319)

Chris Budd, **Kieran Calvert**, Sam Johnson, **Sam Tickle**. Assessing risk in the retail environment during the COVID-19 pandemic (2020). View pdf on [arxiv:2011.09277](https://arxiv.org/abs/2011.09277)

**Samuel M Corson.** A widely connected topological space made from diamond (2020). View pdf on [arXiv](https://arxiv.org/abs/2003.09319)

**\*\* Samuel M Corson.** The Griffiths double cone group is isomorphic to the triple (2020). View pdf on [arXiv](https://arxiv.org/abs/2003.09319)

**Edward Crane.** Well-posedness of the mean field forest fire age evolution equation (2020). View pdf on [arxiv:2007.05807](https://arxiv.org/abs/2007.05807)

**Edward Crane, David Abraham, et.al.** Unlocking Higher Education Spaces – What Might Mathematics Tell Us? (2020). Virtual Forum for Knowledge Exchange in the Mathematical Sciences (V-KEMS). View pdf on [View pdf on newton](#)

**Simon Crawford.** Actions of small groups on two-dimensional Artin-Schelter regular algebras. *Journal of Algebra* (2020). View pdf on [doi:10.1016/j.jalgebra.2020.05.005](https://doi.org/10.1016/j.jalgebra.2020.05.005)

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\*\* **John Cremona**, Mohammad Sadek. Local and global densities for Weierstrass models of elliptic curves (2020). View pdf on [arxiv:2003.08454](https://arxiv.org/abs/2003.08454)

**John Cremona**, Filip Najman.  $\mathbb{Q}$ -curves over odd degree number fields (2020). [arxiv:2004.10054](https://arxiv.org/abs/2004.10054)

\*\* **John Cremona**, Nuno Freitas. Global methods for the symplectic type of congruences between elliptic curves, provisionally (2020). View pdf on [arxiv:1910.12290](https://arxiv.org/abs/1910.12290)

Manjul Bhargava, **John Cremona**, Tom Fisher. The proportion of genus one curves over  $\mathbb{Q}$  defined by a binary quartic that everywhere locally have a point (2020). View pdf on [arxiv:2004.12085](https://arxiv.org/abs/2004.12085)

**John Cremona**, Aurel Page, Andrew Sutherland. Sorting and labelling integral ideals in a number field (2020). View pdf on [arxiv:2005.09491](https://arxiv.org/abs/2005.09491)

\*\* **Christopher Doris**. Exact  $p$ -adic computation in Magma (2020). *Journal of Symbolic Computation*. View pdf on [arxiv:2008.11063](https://arxiv.org/abs/2008.11063)

**Christopher Doris**. Computing the Galois group of a polynomial over a  $p$ -adic field. *International Journal of Number Theory* 16, 08 (2020) 1767-1801. View pdf on [arxiv:2003.05834](https://arxiv.org/abs/2003.05834)

\*\* **Rhiannon Dougall**, Richard Shar. Anosov flows, growth rates on covers and group extensions of subshifts. *Inventiones Mathematicae* (2020). View pdf on [doi:10.1007/s00222-020-00994-3](https://doi.org/10.1007/s00222-020-00994-3)

\*\* Neil Dummigan, **Dan Fretwell**. Automorphic forms for some even unimodular lattices (2020). View pdf on [arxiv:2003.08703](https://arxiv.org/abs/2003.08703)

\*\* Márton Balázs, **Dan Fretwell**, Jessica Jay. Interacting Particle Systems and Jacobi Style Identities (2020). View pdf on [arXiv](https://arxiv.org/abs/2003.08703).

James Cruise, **Neil Gillespie**, Brendan Reid. Practical quantum computing: The value of local quantum computation (2020). View pdf on [arxiv:2009.08513](https://arxiv.org/abs/2009.08513)

**Kevin Grace**. The templates for some classes of quaternary matroids (2020). View pdf on [arxiv:1902.07136](https://arxiv.org/abs/1902.07136)

Rutger Campbell, **Kevin Grace**, James Oxley, Geoff Whittle. On density-critical matroids. *The Electronic Journal of Combinatorics* 27, 2 (2020). View pdf on [doi:10.37236/8584](https://doi.org/10.37236/8584)

\*\* George Drummond, Tara Fife, **Kevin Grace**, James Oxley. Circuit-difference matroids. *The Electronic Journal of Combinatorics* 27,3 (2020). View pdf on [doi:10.37236/9314](https://doi.org/10.37236/9314)

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**Scott Harper**, Andrea Lucchini. Connectivity of generating graphs of nilpotent groups (2020). View pdf on [arxiv:2002.03330](https://arxiv.org/abs/2002.03330)

Case Donovan, **Scott Harper**. Infinite  $3/2$ -generated groups (2020). View pdf on [arxiv:1907.05498](https://arxiv.org/abs/1907.05498)

Timothy Burness, **Scott Harper**. Finite groups, 2-generation and the uniform domination number (2020). View pdf on [arxiv:1810.12076](https://arxiv.org/abs/1810.12076)

**Scott Harper**. Shintani descent, simple groups and spread (2020). View pdf on [arxiv:2008.02558](https://arxiv.org/abs/2008.02558)

\*\* Timothy Burness, Robert Guralnick, **Scott Harper**. The spread of a finite group (2020). View pdf on [arxiv:2006.01421](https://arxiv.org/abs/2006.01421)

**Scott Harper**. The spread of almost simple classical groups (2020). View pdf on [arxiv:2004.11060](https://arxiv.org/abs/2004.11060)

John Bamberg, Stephen Glasby, **Scott Harper**, Cheryl Praeger. Permutations with orders coprime to a given integer. *The Electronic Journal of Combinatorics* 27, 1 (2020). View pdf on [doi:10.37236/8678](https://doi.org/10.37236/8678)

Brian Cook, **Kevin Hughes**, Eyvindur Palsson. Supercritical discrete restriction estimates for forms in many variables (2020). View pdf on [arxiv:2004.02301](https://arxiv.org/abs/2004.02301)

\*\* Spyridon Dendrinos, **Kevin Hughes**, Marco Vitturi. Some subcritical estimates for the  $\ell_p$ -improving problem for discrete curves (2020). View pdf on [arXiv](https://arxiv.org/abs/2004.02301)

\*\* **David Hume**, John Mackay, Romain Tessera. Poincaré profiles of Lie groups and a coarse geometric dichotomy. (2020). View pdf on [arXiv](https://arxiv.org/abs/2004.02301)

**Catherine Hsu**. Higher congruences between newforms and Eisenstein series of squarefree level. *Journal de Théorie des Nombres de Bordeaux* 31, 2 (2020). View pdf on [arxiv:1706.05589](https://arxiv.org/abs/1706.05589)

Aitor Azemar, Vaibhav Gadre and **Luke Jeffrey**s. Statistical hyperbolicity for harmonic measure. *International Mathematics Research Notices* (2020). View pdf on [doi:10.1093/imrn/rnaa277](https://doi.org/10.1093/imrn/rnaa277)

**Luke Jeffrey**s. Single-cylinder square-tiled surfaces. *London Mathematical Society Newsletter* (2020). View pdf on [lms.ac.uk/newsletter](https://lms.ac.uk/newsletter)

**Adam Jones**. A control theorem for primitive ideals in Iwasawa algebras. *Journal of Algebra* (2020). View pdf on [arXiv](https://arxiv.org/abs/2004.02301)

**Gene Kopp**. A Kronecker limit formula for indefinite zeta functions (2020). View pdf on [arXiv](https://arxiv.org/abs/2004.02301)

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**\*\* Robert Kurinczuk**, Jean-François Dat, David Helm, Gil Moss. Moduli of Langlands parameters (2020). View pdf on [arxiv:2009.06708](https://arxiv.org/abs/2009.06708)

**Robert Kurinczuk**, Nadir Matringe. A characterization of the relation between two  $\ell$ -modular correspondences. *Comptes Rendus Mathématique* 358, 2 (2020) 201-209. View pdf on [arxiv:1911.12891](https://arxiv.org/abs/1911.12891)

**\*\* Robert Kurinczuk**, Nadir Matringe. The  $\ell$ -modular local Langlands correspondence and local factors. *Journal of the Institute of Mathematics Jussieu* (2020). View pdf on [arxiv:1805.05888](https://arxiv.org/abs/1805.05888)

**Robert Kurinczuk**, Daniel Skodlerack, Shaun Stevens. Endo-parameters for  $p$ -adic classical groups (2020). *Inventiones Mathematicae*. View pdf on [doi:10.1007/s00222-020-00997-0](https://doi.org/10.1007/s00222-020-00997-0)

**\*\* Alex Malcolm**. On the  $p$ -width of finite simple groups (2020). View pdf on [arxiv:2003.00755](https://arxiv.org/abs/2003.00755)

Alonso Castillo-Ramirez, **Justin McInroy**. Miyamoto groups of code algebras generated by small idempotents (2020). View pdf on [arxiv:2001.08426](https://arxiv.org/abs/2001.08426)

**Justin McInroy**. 3-generated axial algebras with a minimal Miyamoto group (2020). View pdf on [arxiv:2004.11773](https://arxiv.org/abs/2004.11773)

**Justin McInroy**, Sergey Shpectorov. An expansion algorithm for constructing axial algebras. *Journal of Algebra* 550 (2020) 379-409. [arxiv:1804.00587](https://arxiv.org/abs/1804.00587)

**\*\* Sanhan Khasraw, Justin McInroy, Sergey Shpectorov**. On the structure of axial algebras. *Transactions of the American Mathematical Society* 373 (2020) 2135-2156. View pdf on [arxiv:1809.10132](https://arxiv.org/abs/1809.10132)

Nikolay Moshchevitin, **Brendan Murphy**, Ilya Shkredov. Popular products and continued fractions. *Israel Journal of Mathematics* 238 (2020) 807-835. View pdf on [arxiv:1808.05845](https://arxiv.org/abs/1808.05845)

Sean Dewar, Derek Kitson, **Anthony Nixon**. Which graphs are rigid in  $\ell_p^d$ ? (2020). View pdf on [arxiv:2007.15978](https://arxiv.org/abs/2007.15978)

Bill Jackson, **Anthony Nixon**, Shin-Ichi Tanigawa. An improved bound for the rigidity of linearly constrained frameworks (2020). View pdf on [arxiv:2005.11051](https://arxiv.org/abs/2005.11051)

**\*\* Georg Grasegger, Hakan Guler, Bill Jackson, Anthony Nixon**. Flexible circuits in the  $d$ -dimensional rigidity matroid (2020). View pdf on [arxiv:2003.06648](https://arxiv.org/abs/2003.06648)

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**Anthony Nixon.** Assur Decompositions of direction-length frameworks (2020).

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Derek Kitson, **Anthony Nixon**, Bernd Schulze. Rigidity of symmetric frameworks in normed spaces. *Linear Algebra and its Applications* 607 (2020) 231-285. View pdf on [arxiv:1808.04484](#)

Katie Clinch, **Anthony Nixon**, Bernd Schulze, Walter Whiteley. Pairing symmetries for Euclidean and spherical frameworks. *Discrete and Computational Geometry* 64 (2020) 483-518. View pdf on [doi:10.1007/s00454-020-00198-9](#)

Hakan Guler, Bill Jackson, **Anthony Nixon**. Global rigidity of 2D linearly constrained frameworks. *International Mathematics Research Notices* (2020). View pdf on [arxiv:1906.10926](#)

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**Anthony Nixon**, Stephen Power. Double-distance frameworks and mixed sparsity graphs. *Discrete and Computational Geometry* 63, 2 (2020) 294-318. View pdf on [doi:10.1007/s00454-019-00164-0](#)

- \*\* Benjamin Bedert, George Cooper, **Thomas Oliver**, Pengcheng Zhang. Twisting moduli for  $GL(2)$  (2020). View pdf on [arxiv:2003.02557](#)
- \*\* Colin Ingalls, Adam Logan, **Owen Patashnick**. Explicit coverings of families of elliptic surfaces by squares of curves (2020). View pdf on [arxiv:2009.07807](#)
- \*\* Tom De Medts, **Simon Peacock**, Sergey Shpectorovd, Michiel Van Couwenberghe. Decomposition algebras and axial algebras. *Journal of Algebra* 556 (2020) 287-314. View pdf on [arxiv:1905.03481](#)
- Joel Klassen, Milad Marvian, **Stephen Piddock**, Marios Ioannou, Itay Hen, Barbara Terhal. Hardness and ease of curing the sign problem for two-local qubit Hamiltonians (2020). View pdf on [arxiv:1906.08800](#)
- Stephen Piddock**, Johannes Bausch. Universal translationally-invariant Hamiltonians (2020). View pdf on [arxiv:2001.08050](#)
- \*\* Tamara Kohler, **Stephen Piddock**, Johannes Bausch, Toby Cubitt. Translationally-invariant universal quantum Hamiltonians in 1D (2020). View pdf on [arxiv:2003.13753](#)

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\*\* Sevag Gharibian, **Stephen Piddock**, Justin Yirka. Oracle complexity classes and local measurements on physical Hamiltonians. *Proceedings of 37th International Symposium on Theoretical Aspects of Computer Science (STACS2020)*. View pdf on [arxiv:1909.05981](https://arxiv.org/abs/1909.05981)

Marios Ioannou, **Stephen Piddock**, Milad Marvian, Joel Klassen, Barbara Terhal. Sign-curing local Hamiltonians: termwise versus global stoquasticity and the use of Clifford transformations (2020). View pdf on [arxiv:2007.11964](https://arxiv.org/abs/2007.11964)

Andrew Jones, **Patrick Rubin-Delanchy**. The multilayer random dot product graph (2020). View pdf on [arXiv](https://arxiv.org/abs/2007.11964)

\*\* Radha Kessar, Gunter Malle, **Jason Semeraro**. Weight conjectures for  $\ell$ -compact groups and spetses (2020). [View pdf on arxiv:2008.07213](https://arxiv.org/abs/2008.07213)

**Jason Semeraro**. A 2-compact group as a spets (2020). [arxiv:1906.00898](https://arxiv.org/abs/1906.00898)

Chris Parker, **Jason Semeraro**. Algorithms for fusion systems with applications to  $p$ -groups of small order (2020). View pdf on [arxiv:2003.01600](https://arxiv.org/abs/2003.01600)

Colin McDiarmid, **Fiona Skerman**. Modularity of Erdős-Rényi random graphs. *Random Structures & Algorithms* 57, 1 (2020) 211-243. View pdf on [arxiv:1808.02243](https://arxiv.org/abs/1808.02243)

Kitty Meeks, **Fiona Skerman**. The parameterised complexity of computing the maximum modularity of a graph. *Algorithmica* 82 (2020) 174-2199. View pdf on [doi:10.1007/s00453-019-00649-7](https://doi.org/10.1007/s00453-019-00649-7)

Tobias Johnson, Moumanti Podder, **Fiona Skerman**. Random tree recursions: which fixed points correspond to tangible sets of trees?. *Random Structures & Algorithms* 56, 3 (2020) 796-837. View pdf on [arxiv:1808.03019](https://arxiv.org/abs/1808.03019)

Georg Loho, **Ben Smith**. Matching fields and lattice points of simplices. *Advances in Mathematics* 370 (2020). View pdf on [arxiv:1804.01595](https://arxiv.org/abs/1804.01595)

**Sam Tickle**, Idris Eckley, Paul Fearnhead. A computationally efficient, high-dimensional multiple changepoint procedure with application to global terrorism incidence (2020). View pdf on [arxiv:2011.03599](https://arxiv.org/abs/2011.03599)

**Nicholas Wilkins**. A construction of the quantum Steenrod squares and their algebraic relations. *Geometry & Topology* 24, 2 (2020) 885-970. View pdf on [arxiv:1805.02438](https://arxiv.org/abs/1805.02438)

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**\*\* James Williams.** On the regular power structure of p-groups and applications (2020). View pdf on [arxiv:2004.04610](https://arxiv.org/abs/2004.04610)

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