

# LUKE ELLIOTT

## University of St Andrews

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🌐 Website: Luke's Website

### MATHS PAPERS

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- L. Elliott, J. Jonušas, J. D. Mitchell, Y. Péresse, and M. Pinsker. Polish topologies on endomorphism monoids of relational structures, submitted, 2022
- J. Belk, L. Elliott, and F. Matucci. A short proof of Rubin's theorem, submitted, 2022
- L. Elliott. Unindexed subshifts of finite type and their connection to automorphisms of Thompson's groups, 2021
- L. Elliott, J. Jonušas, Z. Mesyan, J. D. Mitchell, M. Morayne, and Y. Péresse. Automatic continuity, unique Polish topologies, and Zariski topologies on monoids and clones, submitted, 2021
- L. Elliott. A description of  $\text{Aut}(dVn)$  and  $\text{Out}(dVn)$  using transducers, Accepted by GGD
- C. Bleak, L. Elliott, and J. Hyde. Sufficient conditions for a group of homeomorphisms of the cantor set to be two-generated, submitted, 2020

### DEGREES

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2018-2021 St Andrews – PhD Pure Mathematics  
Thesis: On constructing topology from algebra  
Submission date: 27/9/2021  
Viva date: December 16th 2021

### WORK EXPERIENCE

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- 2022 Research Fellow, University of St Andrews, Programming (in GAP) algorithms for working with elements of the rational group of Grigorchuk, Nekrashevich, and Suschanskii as described in their paper of 2000. Also, the groups of automorphisms of the shift on  $n$ -letters (both one-sided and two-sided).
- 2018-2021 PhD Student at the University of St Andrews
- 2017 Laidlaw Undergraduate Research and Leadership Program: Writing algorithms concerning commutative semigroups supervised by Prof James Mitchell

### AWARDS

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St Andrews Dean's list: 2015, 2016, 2017, 2018  
Scottish Maths Council "Maths Challenge" gold awards

### POSITIONS OF RESPONSIBILITY

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2016-2022: Treasurer of St Andrew's Anime Society  
2019: Organiser of St Andrews PhD student burn trip (with 4 other organisers)

### INTERESTS

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Maths, Programming, Japanese, Anime, Video/Board games.

### MATHS TALKS

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- Unindexed subshifts of finite type. Analysis Seminar (Glasgow) 2022
- Removing indexing from shift spaces. Pure Postgraduate Seminar (St Andrews) 2021
- Removing indexing from shift spaces. Algebra and combinatorics seminar (St Andrews) 2021
- Automorphisms of the Brin-Thompson groups  $nV$ . Young geometric group theory X (Newcastle) 2021
- Finding topologies for semigroups. Pure Postgraduate Seminar (St Andrews) 2021
- Automorphisms of the Brin-Thompson groups  $nV$ . London Mathematical Society Virtual Graduate Student Meeting 2020
- Rubin's Theorem. St Andrews Research Day 2020
- Topological Semigroups. St Andrews Burn Trip 2020
- Automorphisms of  $nV$ . Pure Postgraduate Seminar (St Andrews) 2019
- Vigorous Homeomorphism groups. St Andrews Burn Trip 2019
- Polish Semigroups. 2019 EMS Postgraduate Meeting for Students
- Polish Semigroups. Algebra and combinatorics seminar (St Andrews) 2018

### EDUCATION

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#### St Andrews University – MMath (Hons) Mathematics (Fast Track):

- 2017/18, Average grade: 19.1/20.  
Topics: Semigroups, Groups, Algebraic Topology, Real Analysis.
- 2016/17, Average grade: 19.3/20  
Topics: Advanced Symbolic Computation, Graph Theory, Measure Theory, Real Analysis, Galois Theory, Groups.
- 2015/16, Average grade: 17.5/20  
Topics: Finite Maths, Real and Complex Analysis, Differential Equations, Linear Maths, Rings and Fields, Maths Programming, Number Theory, Statistical Inference, Topology.
- 2014/15, Average grade: 18.5/20  
Topics: Problem-solving, Combinatorics and Probability, Calculus, Abstract Algebra, Linear Maths, Modelling.

### REFERENCES

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- Dr. Collin Bleak: PhD Supervisor  
Email: cb211@st-andrews.ac.uk
- Prof. James Mitchell: PhD Supervisor  
Email: jdm3@st-andrews.ac.uk
- Prof. Volodymyr Nekrashevych: Viva Examiner  
Email: nekrash@math.tamu.edu
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