

# VERONICA KELSEY

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## EDUCATION

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### **PhD Mathematics - University of St Andrews - 2018 - Present**

Supervised by Prof Colva M. Roney-Dougall and Dr Martyn Quick.

My research is on characterising when a maximal subgroup of a finite simple group is a maximal co-clique in the group's generating graph. Currently focusing on the case of alternating groups.

Funding awarded by the School of Mathematics and Statistics.

### **MMath Mathematics - The University of Manchester - 2014 - 2018**

Average - 98%

Dissertation - Mathieu groups and Chamber Graphs - Grade 98% - Supervised by Prof Peter Rowley

Third Year Project - Representations of Quivers - Grade 89% - Supervised by Prof Mike Prest

## PUBLICATIONS

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### **$M_{24}$ Orbits of Octad Triples (with P.J. Rowley)**

*Graphs and Combinatorics*, Volume 34, (2018) Issue 6, pp 1429 - 1443

### **Chamber Graphs of some Geometries that are Almost Buildings (with P.J. Rowley)**

*Innovations in Incidence Geometry*, 17 (2019), no. 3, 189 - 200.

### **A Note on Involution Centralizers in Black Box Groups (with P.J. Rowley)**

*Journal of Group Theory*, J. Group Theory 23 (2020), no. 2, 287 - 297.

### **Chamber Graphs of Minimal Parabolic Sporadic Geometries (with P.J. Rowley)**

*Innovations in Incidence Geometry* - to appear.

### **Generating Finite Coxeter Groups with Elements of the Same Order (with S. Hart and P.J. Rowley)**

Submitted

### **Maximal Cocliques in Symmetric Groups - The Intransitive Case (with C. Roney-Dougall)**

Manuscript

## AWARDS AND SCHOLARSHIPS

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**Research in "Pairs", MFO Oberwolfach 2020** - A funded two week stay at Mathematisches Forschungsinstitut Oberwolfach with Sarah Hart and Peter Rowley.

**St Andrews PhD scholarship** - Fees and a stipend for 3 years of study

**Outstanding Academic Achievement Award 2018** - Presented to 0.5% of the Manchester student population

**Institute of Mathematics and its Applications (IMA) Prize 2018** - Final year outstanding project

**President's Doctoral Scholar Award (Manchester) 2018/19** - As part of a PhD offer (declined)

**Nominated for The Distinguished Achievement Award 2018** - Undergraduate of the Year

**Fourth Year Scholarship 2017** - Tuition fee waiver

**LMS Undergraduate Research Bursary 2017** - Funding for a summer research project

**BP achievement award 2016** - For an essay on Big Data

**Dalton scholarship 2016** - Academic achievement in 2<sup>nd</sup> year

**Dalton scholarship 2015** - Academic achievement in 1<sup>st</sup> year

**Manchester Bursary 2014** - Academic achievement at A-level

## TALKS

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### **M<sub>24</sub> and Octad Triples**

(invited speaker) Junior London Algebra Colloquium, June 2020

### **Maximal Subgroups and Maximal Cocliques**

(Invited speaker) York Algebra Seminar, York, May 2020

### **Imprimitive Maximal Cocliques**

(Invited speaker) Functors, Categories and Groups meeting, Lancaster, cancelled due to Covid-19

### **Maths and Mazes**

School Outreach, St Andrews, 2020

### **Chamber Graphs of The Sporadic Groups**

Postgraduate Interdisciplinary Mathematics Symposium, The Burn House, 2020

### **Maximal Cocliques in The Generating Graph of S<sub>n</sub>**

Postgraduate Group Theory Conference, Birmingham, 2019

### **Octad Triples**

Edinburgh Mathematical Society Postgraduate Meeting, The Burn House, 2019

### **The Generating Graph and Maximal Cocliques**

Algebra and Combinatorics Seminar, University of St Andrews, 2019

### **Maximal Subgroups and Maximal Cocliques**

Postgraduate Interdisciplinary Mathematics Symposium, The Burn House, 2019

### **A Brief Introduction to M<sub>12</sub>**

Pure Postgraduate Seminar, St Andrews, 2018

### **The Kitten, The MINIMOG and M<sub>12</sub>**

Pure Postgraduate Seminar, Manchester, 2018

### **Mathieu Groups and Chamber Graphs**

Masters thesis talk, The University of Manchester, 2018

### **Imprimitive Wreath Products**

Finite Groups Study Group, The University of Manchester, 2017

## TEACHING

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I have attended a Mental Health Training Day which provides staff with practical information on how to deal with student situations involving mental ill health.

**Abstract Algebra** tutor, St Andrews - 2020

**Linear Maths** tutor, St Andrews - 2019

**Combinatorics and Probability** tutor, St Andrews - 2019

**Abstract Algebra** tutor, St Andrews - 2019

**Linear Algebra** tutor, Manchester - 2018

**Foundations of pure mathematics** tutor, Manchester -2017

**Linear Algebra** PASS leader, Manchester, 2016

**Sequences and Series** PASS leader, Manchester, 2016

**Introduction to Statistics, PASS leader** PASS leader, Manchester, 2016

**Probability 1** PASS leader, Manchester, 2015

**Sets, Numbers and Functions** PASS leader, Manchester, 2015

PASS is a University of Manchester scheme where students organise and lead twice weekly tutorials for first years.

## CONFERENCES AND WORKSHOPS ATTENDED

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**Groups, representations and applications: new perspectives** (Invited participant), Isaac Newton Institute, March 2020  
**Introductory Workshop** Isaac Newton Institute, January 2020  
**Post Graduate Group Theory Conference** Birmingham, August 2019  
**EWM-EMS Summer School** Institut Mittag-Leffler, June 2019  
**Edinburgh Mathematical Society Postgraduate Meeting** The Burn House, May 2019  
**North British Geometric Group Theory Seminar** St Andrews, May 2019  
**Groups, Generalisations and Applications** St Andrews, May 2019  
**Workshop on Groups, Generalisations and Applications** Aberdeen, January 2019  
**The Functor Categories for Groups on Graphs and groups** Lancaster, December 2018  
**The Manchester-Birmingham-London-Bristol “Triangle”** Manchester, May 2018  
**LMS Prospects in Mathematics Workshop** - Reading, September 2017

## OTHER ACTIVITIES

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**Python Core and Advanced Course** - June 2020  
**Basic online first aid course** - June 2020  
**Mental Health Training Day** - May 2019  
**University of St Andrews School of Maths Outreach** - 2020  
**Postgraduate Intradisciplinary Mathematics Symposium Organiser** - 2019/20  
**Mentor in Peer Mentoring scheme** - 2019/20  
**Pure Postgraduate Seminar Convener** - 2019/20  
**Topical Secretary for MathSoc** - 2017/18  
**MathSoc Seminar Convener** - 2017/18

## REFERENCES

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Prof Colva M. Roney-Dougal - PhD Supervisor  
Colva.Roney-Dougal@st-andrews.ac.uk

Prof Alexandre Borovik - Dissertation Marker  
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