

# 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-Dougal 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.

### **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<sub>24</sub> 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*, to appear

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

Submitted. MIMS EPrint: 2018.21

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

In preparation

## RESEARCH EXPERIENCE

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### **London Mathematical Society Undergraduate Researcher 2017**

An LMS funded summer research project with Prof Peter J Rowley. We looked at certain finite simple groups and the combinatorial objects they act upon. This work resulted in two published papers.

## AWARDS AND SCHOLARSHIPS

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**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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### **Maximal Cocliques in The Generating Graph of $S_n$**

Post Graduate 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 $M_{12}$**

Pure Postgraduate Seminar, St Andrews, 2018

### **The Kitten, The MINIMOG and $M_{12}$**

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.

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

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

**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 ATTENDED

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**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”** on Finite Groups Manchester, May 2018

**LMS Prospects in Mathematics Workshop** - Reading, September 2017

## OTHER ACTIVITIES

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### **Topical Secretary for MathSoc - 2017/18**

I organised and ran talks on interesting topics in maths for undergraduates and staff. This encouraged students' engagement with maths outside their studies. Talks were well attended with approximately 50 people at each talk and there was positive feedback from all participants.

### **REFERENCES**

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Prof Mike Prest - Project Supervisor  
mike.prest@manchester.ac.uk

Prof Alexandre Borovik - Dissertation Marker  
alexandre.borovik@manchester.ac.uk