

# Marina Anagnostopoulou-Merkouri

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## EDUCATION

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### **PhD in Mathematics**

2023 - Present

*University of Bristol*

*Supervisor: Prof. Tim Burness*

### **Master in Pure Mathematics (First Class)**

2019 - 2023

*University of St Andrews*

*Final year project on the O’Nan-Scott theorem and base sizes of permutation groups supervised by Prof. Colva Roney-Dougal.*

## PUBLICATIONS

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### **[4] Computing the congruences of a finite semigroup or monoid**

joint with James Mitchell and Maria Tsalakou

30 pages, submitted.

<https://arxiv.org/abs/2302.06295>

### **[3] Pre-primitive permutation groups**

joint with Peter J. Cameron and Enoch Suleiman

**Journal of Algebra** 636 (Dec. 2023), pp. 695–715.

<https://www.sciencedirect.com/science/article/pii/S0021869323004593>

### **[2] Association Schemes with given stratum dimensions: on a paper of Peter M. Neumann**

joint with Peter J. Cameron

**Algebraic Combinatorics**

24 pages, to appear

<https://arxiv.org/abs/2208.04049>

### **[1] Properties of congruence lattices of graph inverse semigroup**

joint with Zachary Mesyan and James Mitchell

**International Journal of Algebra and Computation.**

24 pages, to appear

<https://arxiv.org/abs/2108.08277>

## SOFTWARE

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### **Digraphs GAP package**

-Improved efficiency for methods used for canonical labelling and graph isomorphism.  
-Implemented graph theory algorithms such as the almost linear Tarjan and Lengauer algorithm for computing dominators, and algorithms for reachability.

### **Semigroups GAP package**

-Constructed new algorithms for graph inverse semigroup congruences and congruence lattices and implemented them.

## TALKS

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[6] **Bristol postgraduate seminar** *November 2023*  
*Permutation groups and Galois' confusion*  
University of Bristol

[5] **Seminars on groups and graphs, SUSTech** *October 2023*  
*New properties of permutation groups*  
Southern University of Science and Technology (SUSTech), Shenzhen, China (Online)

[4] **York semigroups seminar** *March 2023*  
*Congruence lattices of graph inverse semigroups*  
University of York

[3] **Tomorrow's Mathematicians Today** *March 2023*  
*Pre-primitive permutation groups*  
University of Greenwich (Online)

[2] **St Andrews Maths Society** *November 2022*  
*Strongly regular graphs with given stratum dimensions*  
University of St Andrews

[1] **Tomorrow's Mathematicians Today** *February 2022*  
*Congruence lattices of finite graph inverse semigroups*  
University of Greenwich (Online)

## TEACHING

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**University of Bristol** *September 2023 - Present*  
-Linear algebra tutor *September 2023 - May 2024*

**Private tutoring** *November 2022 - April 2023*  
-Prepared notes and delivered tutorials for GCSE, A-level students, and IB students.

**MyTutor** *December 2020 - September 2022*  
-Prepared notes and delivered tutorials for GCSE and A-level students.

**Coronavirus Tutoring Initiative** *April 2020 - October 2020*  
-Prepared notes and delivered tutorials for GCSE and A-level students.

## FUNDING AWARDED

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### **St Andrews Research Internship Scheme**

- Funding granted for doing research on permutation group theory. 2022

### **University of St Andrews Careers Centre Employability Bursary**

- Funding granted to extend my summer research internship and undertake a second project on group theory. 2022

### **LMS Undergraduate Research Bursary**

- Funding granted for a summer research project on association schemes. 2022

### **St Andrews Research Internship Scheme**

- Funding granted for completing a research project on computational semigroup theory. 2022

## LANGUAGES

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Greek (Native), English (C2), French (C2), German (B2).

## OTHER

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### **Maths Base Helper**

*September 2020 - May 2023*

- Helping first and second year St Andrews students with questions.

### **School of Mathematics and Statistics Ambassador**

*October 2021 - April 2023*

- Helping at the school of mathematics and statistics visiting day talks, attended by prospective students.

### **Zero Gravity mentor**

*July 2022 - May 2023*

- Mentoring a final year school pupil from a low-income background that wants to study mathematics in university.

### **University of St Andrews Karate Club**

- Captain (04/2021 - 04/2023), Covid Officer (09/2020 - 03/22), Wellbeing Officer (04/2020 - 10/2021, 04/2022 - Present), Safety and Fundraising Officer (04/2020 - 04/2021).

### **St Andrews Athletic Union Colours Award**

- Award for exceptional service and dedication to the karate club. 2022

### **University of St Andrews Mathematics Society**

- Social Representative. *April 2021 - March 2022*

### **Trained in piano and singing (mostly classical)**