

Dr Matina Trachana

Professional Experience

- 11/2021-present Teaching Fellow in Mathematics, School of Mathematics, Cardiff University, UK.
- Delivery of undergraduate and postgraduate lectures and problem classes in mathematics and statistics, with 130 frontal teaching hours per academic year.
 - Primary supervisor for MSc dissertations.
 - Engaging in research on moment problems.

Education

- 2017-2022 PhD in Mathematics, School of Mathematics, Statistics and Physics, Newcastle University, UK. Thesis: *A Flat Extension Theorem for Truncated Matrix-Valued Multisequences*. Supervisors: D. Kimsey, E. Kakariadis, M. Dritschel.
- 2014-2016 MSc in Mathematics, Direction: Pure Mathematics, Department of Mathematics, University of the Aegean, Greece. Dissertation: *An Introduction to Operator Theory* (in Greek). Advisor: E. Felouzis.
- 2010-2014 BSc in Mathematics, Department of Mathematics, University of the Aegean, Greece.

Publications

- 2022 D. P. Kimsey and M. Trachana, *On a Solution of the Multidimensional Truncated Matrix-Valued Moment Problem*, Milan J. Math. 90, 17-101 (2022).

Grants and Funding

- 2024 Taith Research Mobility Grant, funded by the Welsh Government, to support a research collaboration visit to the Department of Mathematics and Computer Science, University of Cagliari, Italy. Hosted by M. Infusino.
- 2021 LMS Travel Grant for Early Career Researchers, in support of participation in the Joint Mathematics Meetings 2022 (USA).
- 2018 LMS Postgraduate Research Conference Grant. Secured funding for the Young Functional Analysts' Workshop, Newcastle University, as a member of the organising committee.
- 2017-2021 PhD Studentship, School of Mathematics, Statistics and Physics, Newcastle University. Fully funded doctoral studentship (full-time).

Invited Talks

At conferences and workshops

- 06/09/2022 Truncated Moment Problems Special Session, International Workshop on Operator Theory and its Applications 6-10 September 2022, Krakow, Poland. Talk: *On a Solution of the Multidimensional Truncated Matrix-Valued Moment Problem*.
- 09/04/2022 ILAS Special Session on the Interplay of Matrix Analysis and Operator Theory, Virtual JMM 6-9 April 2022, US. Talk: *A Solution of the Truncated Multidimensional Matrix-Valued Moment Problem*.
- 12/08/2021 Young Functional Analysts' Workshop, Lancaster University, UK, 12-14 August 2021. Talk: *A Flat Extension Theorem for Truncated Matrix-Valued Multisequences*.

At seminars

- 01/07/2024 Mathematics Seminar, Department of Mathematics and Computer Science, University of Cagliari, Italy. Talk: *On a solution to the truncated matrix-valued moment problem on \mathbb{R}^d* .
- 28/4/2022 GAPT Seminar, Cardiff School of Mathematics, UK. Talk: *On a Solution of the Multidimensional Truncated Matrix-Valued Moment Problem*.

- 14/12/2020 Analysis Seminar, School of Mathematics, Statistics and Physics, Newcastle University, UK. Talk: *The Matrix-Valued Moment Problem for Flat Data*.
- 09/03/2020 Postgraduate Forum, Lancaster University, UK. Talk: *The Truncated Matrix-Valued Moment Problem on \mathbb{R}^d* .

Participation in Conferences (selection)

- 21-26/05/2023 Joint Spectra and Related Topics in Complex Dynamics and Representation Theory Workshop, Banff International Research Station for Mathematical Innovation and Discovery (BIRS), Banff, Canada.
- 22-26/07/2021 Working Groups for Women in Operator Theory, Lorentz Centre (online).
- 20/11/2020 North British Functional Analysis Seminar, Newcastle University (online).
- 08-13/07/2019 8th Summer School in Operator Theory at the University of Athens, Greece.
- 03-05/04/2019 Young Functional Analysts' Workshop at the University of Leeds, UK.
- 01-02/11/2018 North British Functional Analysis Seminar at Oxford University, UK.
- 09-14/07/2018 7th Summer School in Operator Theory at the University of Athens, Greece.
- 12-14/04/2018 50th Anniversary Meeting of the North British Functional Analysis Seminar at ICMS, Edinburgh, UK.
- 02-03/11/2017 Spectral Theory of Hankel Operators and Related Topics at King's College London, UK.

Dissertation Supervision

- Primary supervisor for MSc dissertations on projects involving data analysis of wildfire behaviour, time series forecasting for market indices, classification of online news popularity and the spectral theorem of Hermitian matrices, Cardiff School of Mathematics.
- Second marker for MSc dissertations, Cardiff School of Computer Science and Informatics.
- Drop-in MSc dissertation support service.

Teaching and Assessment Experience

At Cardiff University

- 2024/25 Algebra II: Rings (Year 3), module leader: design and delivery of lectures, preparation of problem sheets, quizzes, examinations and weekly module maps.
- 2023/24 ○ Ordinary Differential Equations (Year 3), module leader: design and delivery of lectures, preparation of problem sheets, quizzes, examinations and weekly module maps.
- Linear Algebra II (Year 2): design and delivery of lectures.
- Geometry (Year 1): design and delivery of tutorials.
- 2022/23 Algebra II: Rings (Year 3), co-module leader: design and delivery of lectures.
- 2021/22 Real Analysis (Year 2): design and delivery of problem classes.
- 2021/22-2023/24 ○ Delivery of R-based classes for the following modules: Foundations of Statistics and Data Science (MSc), Credit Risk Scoring (MSc), Econometrics for Financial Mathematics (Year 2).
- Workshop support for Foundations of Mathematics II (Year 1).
- Exam assessments, coursework marking and problem sheet evaluations for undergraduate and postgraduate modules.

At Newcastle University

- 2020/21 Introductory Algebra (Year 1): design and delivery of synchronous online sessions using virtual whiteboards.
- 2017-2021 Assessment of undergraduate mathematics assignments.

Teaching Recognition

- 2022 Nomination for 'Most Engaging Staff Member', Enriching Student Life Awards, Cardiff University.

Professional Development

- 07-08/09/2023 CETL-MSOR 2023 Conference, School of Mathematics, Cardiff University. Conference for those involved in teaching and learning of Mathematics, Statistics and Operational Research in Higher Education.
- 29/06/2023 Associate Fellowship of the Higher Education Academy (AFHEA). Awarded by Advance HE, concurrently recognised as a Cardiff University Education Associate Fellow.
- 14-15/09/2022 Induction Course for New Lecturers in the Mathematical Sciences, Institute of Mathematics and its Applications (IMA), Cambridge.
- 24/01/2019 Introduction to Learning and Teaching in Higher Education, Newcastle University. One-day workshop on demonstrator training.
- 28/02/2018 Introduction to Learning and Teaching in Higher Education, Newcastle University. One-day workshop on seminar delivery.

Outreach

Hands-on demonstrations for young audiences:

- 14/02/2024 After Dark: Science on Show, National Museum Cardiff.
- 08/03/2023 Grangetown Career and Role Models Week.
- 22/02/2023 After Dark: Science on Show, National Museum Cardiff.
- 18/02/2023 Maths Adventures Day, Cardiff School of Mathematics.
- 04/2020-07/2021 Women in Science Doing Outstanding Maths and Physics (WISDOM), School of Mathematics, Statistics and Physics, Newcastle University. Pre-recorded talk: *The Reality of Imaginary Numbers*.

Skills and Competencies

Software: \LaTeX , Maple, Microsoft Office, R, Jupyter notebooks.

Digital education: Blackboard, Canvas, Panopto, Turnitin, Mentimeter, Geogebra, Padlet.

Languages: English, Greek.

Professional Memberships

European Women in Mathematics, member, 2021-present.