

Fiona Torzewska

Curriculum Vitae

University of Leeds
School of Mathematics
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Education

- 2013–2017 **MPhys (Hons), Theoretical Physics, First Class.**
University of Leeds, UK
- 2017–2021 **3rd year PhD, Mathematics, Algebraic, topological and geometric aspects of topological quantum computation, Expected submission: July 2021,** School of Mathematics, University of Leeds, UK.
Supervisors: Professor Paul Martin and Dr João Faria Martins

Employment History

- 2019–2019 **JSPS Summer Program Fellow, Deguchi Lab, Ochanomizu University, Tokyo,** 10th June–21st August.
- 2017– **Teaching assistant, University of Leeds.**
- 2016 **Summer Research Placement: Adiabatic computation in abelian quantum doubles, Supervisor: Professor Jiannis Pachos,** School of Physics and Astronomy, University of Leeds, 13th June–5th August.
- 2015 **Summer Research Placement: Hidden quantum markov models, Supervisor: Dr Almut Beige,** School of Physics and Astronomy, University of Leeds, 15th June–7th August.

Awards

- 2019 **JSPS Summer Program Fellowship, Funding body: JSPS.**
Project: From resistance distances to the Pott's model.
- 2017 **Leeds doctoral scholarship, Funding body: University of Leeds.**
Funding for PhD.
- 2016 **School of mathematics excellence scholarship, Funding body: University of Leeds.**
- 2015 **Undergraduate Research and Leadership Scholarship, Funding body: University of Leeds, Value: £6,000.**
Funding for summer research placements and outreach activities, and some leadership training.

Publications

Non-ergodicity through quantum feedback, With: L.A.Clark, B.Maybee, A.Beige, EPL 130, 54002 (2020), (Result of undergraduate summer placement).

Works in progress

Motion groupoids and mapping class groupoids, *With: P.P.Martin and J.F.Martins*, To appear on arxiv March 2021.

Topological quantum field theories for cospan cobordisms, To appear on arxiv June 2021.

From resistance distances to the Pott's model, *With: T.Deguchi*, In preparation.

Comparing zested and unzested modular tensor categories, *With: A.Camacho, J.Plavnik, C.Delaney, A.Kontrec and A.Castaño*.

Collaboration as part of Women in Mathematical Physics program

Talks

Motion groupoids and mapping class groupoids series.

Series of three lectures aimed at PhD students delivered as part of the LMS funded YaMCATS category theory and its applications series.

Topological quantum field theories for cospan cobordisms.

November 2019: Glasgow geometry and topology seminar

November 2019: Leicester postgraduate conference in category theory and its applications (25 min version)

(Flash Talk) TQFTs associated to finite groups: A topological quantum field theory for the category surface tangles.

April 2019: New Connections and Directions in Representation Theory and Related Topics

May 2019: Knots and Braids in Norway

A finite total homotopy topological quantum field theory.

March 2019: Geometry and Topology GATEWAY seminar, *University of Warwick*

Using model categories to construct topological quantum field theories.

March 2019: Low dimensional topology seminar, *RIMS, Kyoto*

Conferences

2020 **Connections for Women: Quantum Symmetries**, *MSRI*, 23rd-24th January, (Poster and flash talk).

Introductory workshop: Quantum Symmetries, *MSRI*, 27th-31st January.

Winter Braids X, *Università di Pisa*, 17th-21st February, (Poster and flash talk).

2019 **Winter Braids IX**, *Université de Reims*, 4th-7th March.

New Connections and Directions in Representation Theory and Related Topics, *University of Leeds*, 15th -17th April.

Knots and Braids in Norway, *NTNU, Trondheim*, 13th-17th May.

Postgraduate conference in category theory and its applications, *University of Leicester*, 18th-19th November.

2018 **Quantum Computation and Information Workshop**, *Texas A&M University*, 20th-22nd Sept, (Presented poster).

2017 **Higher Structures Lisbon**, *Instituto Superior Técnico, Lisbon*, 24th-27th July.

Teaching experience

2017– **Teaching assistant**, *University of Leeds*.

- MATH3225: Topology, Marker, *Spring 2021*
- MATH1060: Introductory Linear Algebra (Joint Honours), Tutorial assistant, *Spring 2019*;
- MATH2022: Groups and Vector Spaces, Tutorial assistant/Marker, *Autumn 2018, 2019, 2020*;
- MATH2027: Rings and Polynomials, Marker, *Spring 2018, 2019, 2020*;
- MATH2410: Special Relativity, Marker, *Autumn 2017*;

Other professional experience

2019 **Conference organiser: Loops in Leeds: motion groups and related topics**, *With: C.Damiani, J.Faria Martins, P.Martin, A.Bullivant, H.Albeladi*, School of Mathematics, University of Leeds.

2018 **Conference organiser: Higher Gauge Theory: Where should we look for higher gauge matter?**, *With: J.Faria Martins, P.Martin*, School of Mathematics, University of Leeds.

2018–2019 **Seminar organiser: Pure postgraduate seminar**, *With: J. Howe*, University of Leeds.