

TAMARA HOGAN

PERSONAL INFORMATION

Full Name: Tamara Mae Hogan
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PROPOSED THESIS TOPIC

The proposed thesis will aim to construct an explicit map between the Grothendieck-Teichmüller group and the Kashiwara-Vergne group using a combination of knot theory and homotopy theory. This will extend preliminary work done in the MSc thesis.

EDUCATION

Doctor of Philosophy (Mathematics and Statistics)
University of Melbourne & University of Sydney (2021-Present)

Master of Science (Mathematics and Statistics)
University of Melbourne (2018-2020)

Bachelor of Science (Mathematics and Statistics)
University of Melbourne (2015-2018)

RESEARCH EXPERIENCE

MSc Thesis

University of Melbourne (2020)

Supervisor: Dr Marcy Robertson

Title: Symmetries of trivalent tangles: Approaching the link between Drinfeld associators and Kashiwara-Vergne solutions

Description: Constructed a novel sub-set of welded foams to explore how the Grothendieck-Teichmüller group sits inside the Kashiwara-Verge group.

Vacation Research Scholarship Poster

University of Melbourne (Jan-Feb 2018)

8-week research project resulting in a poster presentation.

Supervisor: Dr Marcy Robertson

Title: Surface braid groups and mapping class groups

Description: A brief exploration of the connection between braid groups on surfaces and mapping class groups.

GRADUATE AWARDS AND SCHOLARSHIPS

John and Allan Gilmour Research Award (2022)

University of Melbourne

\$4,158.80 one-time award.

Awarded to two graduate students in the Science Faculty once a year.

The John and Allan Gilmour Research Award was established through the generosity of Mr John Gilmour of North Melbourne in 1958, to promote medical and scientific research at the University of Melbourne.

Master of Science (Mathematics and Statistics) Scholarship (3 times)

University of Melbourne

Awarded Semester 2 2018, Semester 1 2019, and Semester 2 2019

\$2000.00 a semester (For a maximum of 3 semesters)

Awarded for achieving an average mark above 75% for the semester in Master of Science (Mathematics and Statistics).

PUBLICATIONS

Z. Dancso, T. Hogan, and M. Robertson. (2022). [A knot-theoretic approach to comparing the Grothendieck-Teichmüller and Kashiwara-Vergne groups](#).
arXiv:2211.11370

T. Hogan. (2021, preliminary). [The link between Drinfel'd associators and Kashiwara-Vergne solutions](#). MATRIX-MFO Tandem Workshop: Invariants and Structures in Low-Dimensional Topology (hybrid meeting), Oberwolfach Reports **42** (2021) pp 28-30.

TALKS

'A knot-theoretic approach to comparing the Grothendieck-Teichmüller and Kashiwara-Vergne groups' (September 2022), University of Melbourne Topology Seminar, in-person (50 minutes).

'Symmetries of 3D and 4D expansions' (December 2021), presented at the Topology Special Session of the AustMS Meeting 2021, Online (20 minutes).

'The link between Drinfel'd associators and Kashiwara-Vergne solutions' (September 2021), presented at MATRIX-MFO Tandem Workshop: Invariants and Structures in Low-Dimensional Topology, Online (10 minutes).

[A basic introduction to planar algebras](#)' (April 2021), presented at the (GT)² PhD Student Symposium, Online (20 minutes).

'Symmetries of trivalent tangles: approaching the link between Drinfeld associators and Kashiwara-Vergne solutions' (December 2020), presented at the Topology Special Session of the AustMS Meeting 2020, Online (20 minutes).