

Daniel Dunmore

Curriculum Vitae

N.S.W., Australia
0468 326 683
d.dunmore@unsw.edu.au
delphinoid.github.io

Education

2024 – present	Ph.D. Student in Pure Mathematics (University of New South Wales) Supervisors: Dr. Anna Romanov, Assoc. Prof. Pinhas Grossman, Dr. Arnaud Brothier Topic: Module Categories over Soergel Bimodules
2019 – 2023	Bachelor of Advanced Science (Honours) (University of New South Wales) Majors: Pure Mathematics, Advanced Physics Cumulative WAM: 80 Honours Supervisor: Dr. Arnaud Brothier Honours Topic: From Subfactors to Richard Thompson's Groups and their Generalizations Honours WAM: 85 (First Class Honours)

Research Interests

My current research interests include

- category theory and categorification, especially the category of Soergel bimodules and its (categorical) representation theory;
- group theory and representation theory, primarily with respect to infinite simple groups such as Thompson-like groups and their unitary representations;
- planar algebras, subfactor theory and fusion categories;
- topological quantum field theory and low-dimensional topology.

Publications

Cifuentes, J. D., Tantt, T., Gilbert, W. et al., *Bounds to electron spin qubit variability for scalable CMOS architectures*, Nat. Commun. 4299.15 (2024).

Talks

2024, Dec. 5th	Contextualizing Categorical Representation Theory AAMS Student Conference (Australia)
2024, May 1st	Basics of Module Categories Tensor Categories and their Modules Learning Seminar (Australia) https://sites.google.com/view/tensorcategories/home

2023, Nov. 14th	From Subfactors to Richard Thompson's Groups and their Generalizations UNSW Pure Mathematics Honours Seminar (Australia)
2022, Feb. 3rd	C^*-Algebras of Discrete Groups AMSIConnect (Australia) https://vrs.amsi.org.au/student-profile/daniel-dunmore/

Conferences

2024, Nov. 18th – 2024, Nov. 29th	Tensor Categories, Quantum Symmetries, and Mathematical Physics MATRIX (Australia)
--------------------------------------	--

Teaching

2024, Jan. 2nd – 2024, Feb. 2nd	An Introduction to Category Theory Informal reading course
------------------------------------	--

Awards

2021	AMSI Vacation Research Scholarship (\$3,000 AUD)
------	---

Internships

2020, Sept. – 2021, June	ARC Centre of Excellence for Quantum Computation and Communication Technology
-----------------------------	--

Posters

Samuel, J., Dunmore, T., Dunmore, D., Saraiva, A., Coppersmith, S. N., *Bloch Sphere Model for Two Spin- $\frac{1}{2}$ Systems*, presented as part of the UNSW Talented Students Program (2020).

Technical Skills

- Proficient in C, Assembly, MATLAB/Octave, Python, Mathematica, C++, PHP, JavaScript and HTML5.
- Experience with COMSOL Multiphysics and LiveLink for MATLAB.