

# Daniel Barter

- website: [danielbarter.github.io](http://danielbarter.github.io)
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## Education

- PhD, Pure Mathematics, University of Michigan. September 2012 - May 2017. Specialized in category theory and representation theory. Thesis: [Some Remarks about the Interaction between Quantum Algebra and Representation Stability](#).
- B.Sc with First Class Honours and University Medal, Pure Mathematics, University of Sydney. March 2008 - December 2011.

## Employment

- Australian National University. February 2018 - . Postdoctoral fellow. Working on topological phases of matter and low dimensional categories.
- University of Sydney. August 2017 - January 2018. Postdoctoral researcher in Physics. Thinking about topological phases of matter.
- University of Michigan. September 2012 - May 2016. Graduate student instructor for calculus 1, 2 and 3. Taught classes with 20-30 students, three times a week. Held office hours. Helped students use Mathematica. Graded homework/exams.
- University of Sydney. March 2011 - June 2012. Tutor for calculus 1 and 2. Supervised problem sessions and graded homework/exams.

## Papers

- Computing Defects Associated to Bounded Domain Wall Structures: The  $\mathbf{Vec}(\mathbb{Z}/p\mathbb{Z})$  case. Joint with Jacob Bridgeman. [arXiv:1901.08069](#).
- Fusing Binary Interface Defects in Topological Phases: The  $\mathbf{Vec}(\mathbb{Z}/p\mathbb{Z})$  case. Joint with Jacob Bridgeman and Corey Jones. [arXiv:1810.09469](#).
- Domain walls in topological phases and the Brauer-Picard ring for  $\mathbf{Vec}(\mathbb{Z}/p\mathbb{Z})$ . Joint with Jacob Bridgeman and Corey Jones. [arXiv:1806.01279](#). To appear in Communications in Mathematical Physics.
- Deligne categories and representations of the infinite symmetric group. Joint with Inna Entova-Aizenbud and Thorsten Heidersdorf. [arXiv:1706.03645](#).
- Eigenvalues of rotations and braids in spherical fusion categories. Joint with Corey Jones and Henry Tucker. [arXiv:1611.00071](#). To appear in Journal of Algebra.
- Computing the minimal model for the quantum symmetric algebra. [arXiv:1610.05204](#).
- A remark about 6j symbols and young semi-normal form. [arXiv:1610.05248](#).
- Noetherianity and rooted trees. [arXiv:1509.04228](#).

## Invited Talks

- University of Newcastle CARMA-CEEHE Workshop on Diagramatic Reasoning, 2018, *Diagrammatic methods for computing defect fusion in topological phases*.

- University of Sydney quantum information seminar, 2018, *Binary interface defect fusion in Levin-Wen models*.
- University of Sydney algebra seminar, 2018, *Fusion categories and  $(2+1)$ -dimensional topological quantum field theory*.
- University of Sydney quantum information seminar, 2018, *Fusion categories, 2D LRE topological phases and Brauer-Picard rings*.
- Scott's Kioloa conference, 2017, *One way Modular Tensor Categories arise in condensed matter physics*.
- Berkeley combinatorics seminar, 2015, *Combinatorial categories, configuration spaces and tensorial species*.
- Michigan theoretical computer science seminar, 2014, *Tensor rank and stability in representation theory*.