

# Daniel Barter

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- citizenship: Australia

## Education

- B.Sc with First Class Honours and University Medal, Pure Mathematics, University of Sydney, 2008-2011.
- PhD, Pure Mathematics, University of Michigan, 2012 - 2017. Specialized in category theory and representation theory. Thesis: [Some Remarks about the Interaction between Quantum Algebra and Representation Stability](#).
- Independent Study. I like to think about:
  - Pure Mathematics: **differential geometry, representation theory and category theory**: I am particularly interested in the interaction between these subjects and physics. Recently, I have been thinking about the relationship between tensor categories, classical representation theory and topological quantum computing.
  - Computer Science: **functional programming, assembly, UNIX, machine learning**: I have read [SICP](#) and solved all of the exercises. I wrote a [simulator for Knuth's MIX machine](#) to learn how computers execute programs. I have been using GNU/Linux as my main operating system since 2012 and am acquainted with the standard tools and how to combine them. I understand the basics of machine learning.

## Preprints

- Noetherianity and rooted trees. [arXiv:1509.04228](#)
- A remark about 6j symbols and young semi-normal form. [arXiv:1610.05248](#)
- Computing the minimal model for the quantum symmetric algebra. [arXiv:1610.05204](#)
- Eigenvalues of rotations and braids in spherical fusion categories. Joint with Corey Jones and Henry Tucker. [arXiv:1611.00071](#)

## Invited Talks

- Michigan theoretical computer science seminar, *Tensor rank and stability in representation theory*
- Berkeley combinatorics seminar, *Combinatorial categories, configuration spaces and tensorial species*

## Teaching

- Tutor, MATH1001 (Differential Calculus), Sem 1, 2011, University of Sydney
- Tutor, MATH1003 (Integral Calculus and Modeling), Sem 2, 2011, University of Sydney
- Tutor, MATH1901 (Differential Calculus - Advanced), Sem 1, 2012, University of Sydney
- Graduate Student Instructor, Math 115 (Calculus 1), Fall 2012, University of Michigan
- Graduate Student Instructor, Math 115 (Calculus 1), Winter 2013, University of Michigan
- Graduate Student Instructor, Math 215 (Calculus 3), Fall 2013, University of Michigan
- Graduate Student Instructor, Math 116 (Calculus 2), Winter 2014, University of Michigan
- Graduate Student Instructor, Math 116 (Calculus 2), Fall 2014, University of Michigan
- Graduate Student Instructor, Math 215 (Calculus 3), Winter 2015, University of Michigan
- Graduate Student Instructor, Math 116 (Calculus 2), Fall 2016, University of Michigan