Aiden Suter

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Citizenship: Australian

Research Interests

Representation theory, QFT, algebraic geometry, symplectic geometry, vertex operator algebras, $3d$ mirror symmetry, KLR algebras, TQFT, CFT.

Education

- **Perimeter Institute for Theoretical Physics & University of Waterloo** — Waterloo, CA
  PhD in Pure Mathematics, Advisor: Ben Webster — *2020 – 2024*
  Thesis title: "Mathematical Aspects of Higgs and Coulomb Branches"

- **Perimeter Institute for Theoretical Physics & University of Waterloo** — Waterloo, CA
  MSc, Theoretical Physics, Thesis Advisor: Ben Webster — *2018 – 2019*
  Thesis title: "Vertex Operator Algebras and 3d $\mathcal{N} = 4$ Gauge Theories"

- **University of Queensland** — Brisbane, AUS
  MPhil, Mathematics, Advisor: Jorgen Rasmussen — *2017 – 2018*
  Thesis title: "W_3-algebra Representation Theory"

- **University of Queensland** — Brisbane, AUS
  B.Sc. (Hons), Mathematics, (First Class Honours, University Medal) — *2016*
  Advisor: Jorgen Rasmussen
  Thesis title: "Vertex Operator Algebras & Zhu's Algebras"

Papers

- *"A tilting generator for the $T^*\mathrm{Gr}(2,4)$ Coulomb branch"*, `arXiv:2409.01379`, *with Ben Webster*
- *"$L_1(\mathfrak{psl}_{n|n})$ from BRST reductions, associated varieties and nilpotent orbits"*, `arXiv:2409.13028`, *with Andrea Ferrari*
- *In progress: "Deformed 3D A-Model & Boundary VOAs"* , *with Christopher Beem & Andrea Ferrari*

Teaching

Mentorship — 2022-2023
Women in Mathematics DRP — *University of Waterloo*
- Advised 3 undergradute projects on representation theory of Lie groups, category theory and composition algebras.

Lecturing experience — 2023
- Lectured 2 weeks of algebraic geometry — *University of Waterloo*

TA experience — 2016-2023
- Graduate subjects: Riemannian geometry & connections. — *UQ & UW*

- Undergraduate subjects: calculus, linear algebra, group theory, ring theory, real analysis, complex analysis, algebraic geometry, ODEs, number theory.
- Duties: administering oral exams, grading, running tutorials, proctoring and giving lectures.

Talks

- **Associated variety for $L_1(\mathfrak{psl}(N|N))$** 2024
  Quantum Groups and Representation Theory *North Carolina State Uni.*
- **Associated variety for $L_1(\mathfrak{psl}(N|N))$ & 3d A-model Higgs Branch** 2024
  CMS meeting: Integrable systems and quantization *Uni. of Saskatchewan*
- **Associated variety for $L_1(\mathfrak{psl}(N|N))$ & 3d A-model Higgs Branch** 2024
  New Directions in Conformal Field Theory *Fields Institute*
- **Poisson vertex algebras & associated varieties** 2024
  GRIFT seminar *Uni. of Edinburgh*
- **Quantum theory from factorization algebras** 2023
  Mathematical physics seminar *University of Queensland*
- **Chiral Fedosov quantization** 2022
  Graduate student conference *Perimeter Institute*
- **Algebraic Fedosov quantization** 2022
  Algebraic geometry seminar *University of Waterloo*
- **Symplectic duality and boundary VOAs** 2022
  MSRI/AMSI representation theory workshop talk (finalist) *University of Hawaii (hybrid)*
- **Vertex algebras and factorization algebras** 2022
  Factorization algebra learning seminar *University of Toronto*
- **The Poisson bracket and quantum observables** 2022
  Factorization algebra learning seminar *University of Toronto*
- **A brief overview of monstrous moonshine** 2022
  Graduate student colloquium *University of Waterloo*
- **Classification of R-matrices for simple Lie algebras** 2022
  Geometric representation theory learning seminar *University of Toronto (online)*
- **Equivariant cohomology for reductive groups** 2021
  Coulomb branch learning seminar *Perimeter Institute (online)*
- **Quantization commutes with reduction** 2021
  Symplectic geometry graduate course *University of Waterloo (online)*
- **Moment maps** 2020
  Geometric representation theory learning seminar *Boston College (online)*
- **W_3-algebra representation theory** 2018
  ANZAMP annual meeting *University of Auckland*
- **Poisson BRST cohomology** 2017
  Finite W-algebra seminar *University of Queensland*
- **Ribbon categories** 2017
  Quantum invariants of knots seminar *University of Queensland*

Outreach

ACEMS MathCraft 2017
- Visiting schools in lower socioeconomic areas and running presentations and activities exposing students to mathematics that exists beyond school-level. *SE Queensland*

Physics in the Pub 2016
- Comedic public presentation on the difference between real and crackpot physics. Part of a series of events to bring awareness of physics research to a broader audience. *Brisbane*