Curriculum Vitae Christopher Raymond

Contact Information

Christopher Raymond
Department of Mathematics
University of Hamburg
Hamburg 20148 Germany

christopher.raymond@uni-hamburg.de
https://sites.google.com/view/chrisraymond

Research Interests

Keywords: Vertex operator algebras, representation theory, conformal field theory, tensor categories

My research focuses on vertex operator algebras (VOAs) and their representation theory as mathematical descriptions of 2D conformal field theories. I study VOAs and their modules related to logarithmic CFTs, particularly via (inverse) quantum hamiltonian reduction; I'm also interested VOAs arising as invariants of higher-dimensional QFTs such as in the 3d/2d correspondences; and quantum deformations of VOAs related to affine Yangians.

Employment

2024 - 2027
Postdoctoral Fellow, Department of Mathematics (CRC 1624), University of Hamburg, Germany

2023 - 2024
Postdoctoral Fellow, Department of Mathematics and Statistics, Université Laval, Quebec, Canada

2020 - 2023
Postdoctoral Fellow, Mathematical Sciences Institute, The Australian National University, Canberra, Australia

Education

2016 - 2020
Doctor of Philosophy Mathematics, The University of Queensland
Thesis: "Algebraic aspects of conformal field theory"
Advisors: Prof. Jørgen Rasmussen (UQ) Prof. David Ridout (U. Melb.)

2014 - 2015
Master of Philosophy Mathematics, The University of Queensland
Thesis: "Extended Galilean conformal algebras in two dimensions"

2010 - 2013
Bachelor of Science (First Class Honours) Physics, The University of Queensland
Thesis: "Kerr effects in ultracold atom interferometry"

Publications and Preprints

1. Z. Fehily, C. Raymond, D. Ridout, *The principal W-algebra of* $\mathfrak{psl}_{2|2}$, SIGMA **22** (2026) 030, arXiv:2509.04795 [math.QA].
2. J. Fasquel, C. Raymond, D. Ridout, *Modularity of admissible-level* $\mathfrak{sl}_3$ *minimal models with denominator* 2, Commun. Math. Phys. **406** (2025) 279, arXiv:2406.10646 [math.QA].
3. S. Carpi, C. Raymond, Y. Tanimoto, J.E. Tener, *Non-unitary Wightman CFTs and non-unitary vertex algebras*, Selecta Math. **31** (2025) 66, arXiv:2409.08454 [math-ph].
4. C. Raymond, Y. Tanimoto, J.E. Tener, *Unitary vertex algebras and Wightman conformal field theories*, Commun. Math. Phys. **395** (2022) 299–330, arXiv:2203.10795 [math-ph].
5. E. Ragoucy, J. Rasmussen, C. Raymond, *Asymmetric Galilean conformal algebras*, Nucl. Phys. **B981** (2022) 115857, arXiv:2112.03991 [hep-th].
6. C. Raymond, D. Ridout, J. Rasmussen, *Staggered modules of the* $N = 2$ *superconformal algebras*, Nucl. Phys. **B967** (2021) 115397, arXiv:2102.05193 [hep-th].
7. E. Ragoucy, J. Rasmussen, C. Raymond, *Multi-graded Galilean conformal algebras*, Nucl. Phys. **B957** (2020) 115092, arXiv:2002.08637 [hep-th].
8. J. Rasmussen, C. Raymond, *Higher-order Galilean contractions*, Nucl. Phys. **B945** (2019) 114680, arXiv:1901.06069 [hep-th].
9. J. Rasmussen, C. Raymond, *Galilean contractions of W-algebras*, Nucl. Phys. **B922** (2017) 435-479, arXiv:1701.04437 [hep-th].

Grants, Awards and Scholarships

2026 Pacific Institute for the Mathematical Sciences GaPS Fellow

2022 National Science Foundation travel grant for the Quantum Symmetries program of the Centre de Recherches Mathématiques, Montreal.

2021 Walter & Lyn Bloom Travelling Fellowship of the Australian Mathematical Society for visiting position at the University of Oxford

2016 University of Queensland Research Scholarship

2016 UQ School of Mathematics and Physics Teaching Excellence Award

2014 Australian Postgraduate Award for Research Excellence

Teaching and Supervision Experience

Students

Mast. 26/27 Bailey White - University of Hamburg (j.w. Thibault Juillard)

Mast. 25/26 Abhijith Peringara Sajeev - University of Hamburg

Bach. 24/25 Benian Senol - University of Hamburg, (j.w. Christoph Schweigert)

Bach. 21/22 Nicholas Birmingham - Australian National University

Courses

Sem. Winter 25/26 Advanced algebra: modules, categories and homological algebra - Course Coordinator, University of Hamburg

Sem. Summer 2024 Graduate course in vertex operator algebras - Course Coordinator, Université Laval

Sem. 2 2023 MATH1014: Mathematics and Applications 2 - Course Coordinator, ANU

Sem. 2 2022 MATH1014: Mathematics and Applications 2 - Course Coordinator, ANU

Sem. 1 2022 MATH1014: Mathematics and Applications 2 - Lecturer (Linear algebra), ANU

2015 - 2019 Algebraic Methods for Mathematical Physics (3^{rd} year) - Teaching assistant, UQ

2014 - 2020 General Relativity (4^{th} year) - Teaching assistant, UQ

2015 - 2019 Calculus and Linear Algebra II (2^{nd} year) - Teaching assistant, UQ

2019 Mathematics of Data Science I & II (Master's Course) - Teaching assistant, UQ

Talks and Presentations

2026 University of Vienna Mathematical Physics Seminar, Erwin Schrödinger Institute, Vienna

2026 Emerging Azores Representation Theory, University of the Azores, Portugal

2026 PIMS Geometry and Physics Seminar, U Saskatchewan, Canada

2026 Algebra seminar, Laval University, Canada

2025 Algebra seminar, University of Rome Tor Vergata, Italy

2025 Summer meeting of the Canadian Mathematical Society, Université Laval, Canada

2025 Centre for Mathematical Physics seminar (ZMP), DESY Hamburg, Germany

2025 Special session on vertex algebras, SUSTech Shenzhen, China

2024 Representation Theory Seminar, Friedrich Alexander University Erlangen-Nürnberg, Germany

2024 Quantum Symmetries Conference (QuaSyCon) II, University of Notre Dame, Indiana

2024 Rocky Mountain rep theory seminar, online talk

2024 Workshop on new directions in CFT, Fields Institute, Canada

2024 Algebra Seminar, Université Laval, Canada

2024 Mathematical Physics Seminar, CRM University of Montreal, Canada

2023 ANU Diagram Algebra Seminar, Canberra, Australia

2023 Oxford University Functional Analysis Seminar, Oxford, UK

2023 UNSW Pure Math Seminar, University of New South Wales, Sydney, Australia

2023 Annual Meeting of the Australian and New Zealand Association of Mathematical Physicists, Hobart, Australia

2022 Annual Meeting of the Australian Mathematical Society, UNSW Sydney, Australia

2022 Meeting on Tensor categories, TQFTs, Vertex algebras, Centre de Recherches Mathèmatiques, Montreal, Canada

2022 Mathematical Physics Seminar, The University of Melbourne, Melbourne, Australia

2022 UQ Mathematics Seminar, The University of Queensland, Brisbane, Australia

2022 UNSW Pure Math Seminar, University of New South Wales, Sydney, Australia

2022 2D Supersymmetric Theories and Related Topics, MATRIX, Creswick, Australia

2021 Mathematics of Conformal Field Theory II, The Australian National University

2020 What is ...? Seminar (WiSe), The University of Queensland

2020 Annual Meeting of the Australian and New Zealand Association of Mathematical Physicists, Tweed Heads, Australia

2019 Mathematical Physics seminar, University of Melbourne

2018 Annual Meeting of the Australian and New Zealand Association of Mathematical Physicists, Auckland, New Zealand

2017 Affine, vertex and W-algebras, Sapienza University of Rome

2017 Tensor Categories and Field Theory, University of Melbourne

2017 Annual Meeting of the Australian and New Zealand Association of Mathematical Physicists, Kiama, Australia

Membership and Service

Reviewer for Communications in Mathematical Physics, Journal of High Energy Physics, Letters in Mathematical Physics, Journal of Algebra, Communications in Contemporary Mathematics, SIGMA

Co-organiser "Mathematics of Conformal Field Theory II", 5-9 July 2021, the Australian National University.

2025 - 2026 Centre for Mathematical Physics Hamburg/DESY ECR seminar coorganiser

2021 - 2023 ANU research committee member

2021 - 2022 Co-organiser ANU mathematical physics seminar

2015 - 2019 UQ Undergraduate Mathematics Enrichment Seminar coordinator, introducing mathematics outside of the curriculum to undergraduate students

2017 - 2020 UQ School of Mathematics and Physics Research Committee member

2016 - Ongoing Member of the Australian Mathematical Society (AustMS)

2016 - Ongoing Member of the Australian and New Zealand Association of Mathematical Physics (ANZAMP)

References

1. David Ridout, The University of Melbourne, Melbourne, Australia, david.ridout@unimelb.edu.au
2. Jørgen Rasmussen, The University of Queensland, Brisbane, Australia, j.rasmussen@uq.edu.au
3. Sven Möller, Maynooth University, Maynooth, Ireland, sven.moeller@mu.ie
4. James Tener, The Australian National University, Canberra, Australia, james.tener@anu.edu.au
5. Adam Piggott (Teaching), The Australian National University, Canberra, Australia, adam.piggott@anu.edu.au