Curriculum Vitae Kevin Coulembier

Name:	Kevin Coulembier
Web page:	http://www.maths.usyd.edu.au/u/kevinc
Email:	kevin.coulembier@sydney.edu.au

1 Employment

- 1/07/2023 - ... Future Fellow and Associate Professor, University of Sydney
- 1/01/2022 - 30/06/2023 Associate Professor, University of Sydney
- 1/07/2020 - 31/12/2021 Senior Lecturer, University of Sydney
- 1/07/2017 - 30/06/2020 DECRA Fellow and Senior Lecturer, University of Sydney
- 1/09/2015 - 30/06/2017 Research fellow, University of Sydney
- 1/10/2012 - 30/08/2015 FWO[1] Postdoctoral fellowship, Ghent University
- 1/10/2008 - 30/09/2012 FWO PhD fellowship, Ghent University

2 Awards

- 2024: Frontiers of Science Award in Mathematics, with Pavel Etingof and Victor Ostrik
- 2024: Elected Fellow of the Australian Mathematical Society
- 2023: The Australian Mathematical Society Medal (for distinguished research in the mathematical sciences within 15 years of PhD)
- 2021: Christopher Heyde medal from the Australian Academy of Science (for outstanding pure mathematics research within 10 years of PhD in Australia)
- 2023: Australian Research Council (ARC) Future Fellowship: 895,000 AUD
- 2022: SOAR prize (two year package to "support outstanding University of Sydney early and mid-career researchers")
- 2022: G. de B. Robinson Award from the Canadian Mathematical Society (to recognize the publication of excellent papers in the Canadian Journal of Mathematics and the Canadian Mathematical Bulletin), with Chih-Whi Chen
- 2017: ARC Discovery Early Career Research Award (DECRA): 360,000 AUD
- 2008: Prize 'Marianne De Leenheer' at Ghent University for solving SIAM problem (http://www.wiskunde.ugent.be/studenten/mogelijkheden/pmdl.php)

[1] Fonds voor Wetenschappelijk onderzoek - Research Foundation Flanders: www.fwo.be/en/

3 Other grants

- 2023: Odysseus Grant from FWO: 2.445.000 EUR (not taken up)
- 2021: Discovery Project from ARC: 422,887 AUD (partner investigator Pavel Etingof - MIT)
- 2018: Discovery Project from ARC, with Oded Yacobi: 273,485 AUD (partner investigator Julia Pevtsova - University of Washington)
- 2015: 3yr FWO Individual Postdoctoral Grant: 240,000 EUR (not taken up, in favour of position of research fellow at University of Sydney)
- 2012: 3yr FWO Individual Postdoctoral Grant: 215,000 EUR
- 2008: 4yr FWO Individual PhD Grant: 130,000 EUR

4 Selected publications

- K. Coulembier, P. Etingof, V. Ostrik; With an appendix by A. Kleshchev
  On Frobenius exact symmetric tensor categories.
  Annals of Mathematics (2) **197** (2023), no. 3, 1235–1279.
- K. Coulembier, P. Etingof, V. Ostrik and B. Pauwels
  Monoidal abelian envelopes with a quotient property.
  Journal für die Reine und Angewandte Mathematik **794** (2023), 179–214.
- K. Coulembier
  Monoidal abelian envelopes.
  Compositio Mathematica **157** (2021), no. 7, 1584–1609.
- K. Coulembier
  Tannakian categories in positive characteristic.
  Duke Mathematical Journal **169** (2020), no. 16, 3167–3219.
- K. Coulembier
  The periplectic Brauer algebra.
  Proceedings of the London Mathematical Society (3) **117** (2018), no. 3, 441–482.
- K. Coulembier, R.B. Zhang
  Borelic pairs for stratified algebras.
  Advances in Mathematics **345** (2019) 53–115.
- K. Coulembier, V.V. Serganova
  Homological invariants in category $\mathcal{O}$ for the general linear superalgebra.
  Transactions of the American Mathematical Society **369** (2017), no. 11, 7961–7997.
- K. Coulembier
  The primitive spectrum of a basic classical Lie superalgebra.
  Communications in Mathematical Physics **348** (2016), no. 2, 579–602.
- K. Coulembier, V. Mazorchuk
  Primitive ideals, twisting functors and star actions for classical Lie superalgebras.
  Journal für die Reine und Angewandte Mathematik **718** (2016), 207–253.
- K. Coulembier, V. Mazorchuk
  Some homological properties of category $\mathcal{O}$. III.
  Advances in Mathematics **283** (2015) 204–231.

- K. Coulembier, H. De Bie, F. Sommen
  Orthogonality of Hermite polynomials in superspace and Mehler type formulae.
  Proceedings of the London Mathematical Society (3) **103** (2011) 786–825.

5 Service

5.1 Community Service

- Editor for "Mathematische Zeitschrift", 2023 -
- Editor for "Annals of Representation Theory", 2022 -
- Organiser MATRIX program "Tensor categories, quantum symmetries and mathematical physics", 2024, Creswick, with Justine Fasquel, Zachary Fehily, Julia Plavnik, David Ridout and James Tener.
- Organiser of conference "Tensor Categories in Sydney", Sydney, 2022, with Jack Hall. (https://www.maths.usyd.edu.au/u/kevinc/TensorCat.html)
- Organiser of online conference "Modern trends in representation theory", 2022, with Vyacheslav Futorny, Pavel Kolesnikov and Natasha Rojkovskaia.
- Organiser of special session on representation theory in the Annual Meeting of the Australian Math. Soc. 2020, with Oded Yacobi.
- Organiser of conference "Triangulated categories in geometry and representation theory", Sydney, 2019, with Amon Neeman and Oded Yacobi.
  (https://sites.google.com/site/ausreptheory/workshop-2019)
- Organiser of Mini Symposium on Lie superalgebras at 'International Conference on Clifford Algebras and Their Applications in Mathematical Physics', 2017, with Joris Van der Jeugt.

5.2 University of Sydney

- Academic Advisor, 2021 - 2023.
- Mathematics Major Coordinator, 2020 - 2023.
- Organiser of the weekly Algebra Seminar at the University of Sydney: 2016 - 2023.
  (http://www.maths.usyd.edu.au/u/AlgebraSeminar)

6 Supervision and mentoring

6.1 PhD students:

- *Joe Newton*: Incompressible tensor categories.
  2023-2026, University of Sydney.
- *Nick Bridger*: Cohomology of reductive groups.
  2022-2025, University of Sydney.
- *Giulian Wiggins*: Stratified categories and a geometric approach to representation theory of the Schur algebra.
  2018-2022, University of Sydney (Associate supervisor).
- *Sigiswald Barbier*: A minimal representation for the orthosymplectic superalgebra.
  2014–2018, Ghent University.

6.2 Postdoctoral researchers:

- *Alexander Sherman*
  2022-2024, University of Sydney.
- *Bregje Pauwels*
  2019-2021, University of Sydney.

6.3 Undergraduate students:

- Masters thesis of *Finn Kinley*: Category O for the extended Takiff superalgebra.
  2022-2023, University of Sydney.
- Honours thesis of *Joseph Newton*: Bruhat orders of affine Coxeter groups.
  2022, University of Sydney.
- Honours thesis of *Harry Partridge*: Artin motives.
  2021-2022, University of Sydney.
- Dalyell research project of *Youheng Yao*: Representations of the Klein 4-group.
  2021, University of Sydney.
- Honours thesis of *William Stewart*: The universal rigid monoidal category.
  2021, University of Sydney.
- Dalyell research project of *Finn Kinley*: Representation rings.
  2020, University of Sydney.
- Honours thesis of *Sebastian King*: Higher Schur-Weyl duality.
  2017-2018, University of Sydney.
- Masters thesis of *Sigiswald Barbier*: The Segal-Bargmann transform.
  2013–2014, Ghent University.

7 Studies

- 2011: PhD in Mathematics (Ghent University), supervisors Frank Sommen and Hendrik De Bie
  Title of dissertation: Harmonic analysis and integration in superspace
- 2008: Master of Engineering, Physics: great distinction (Ghent University)
- 2007: Bachelor of Mathematics: greatest distinction (Ghent University)
- 2006: Bachelor of Engineering: great distinction (Ghent University)

8 Teaching

8.1 University of Sydney

- 'Algebraic number theory' (Topics in Algebra) - honours/masters course (48 hours): 2025
- 'Algebraic curves' (Topics in Algebra) - honours/masters course (48 hours): 2024
- 'Rings, fields and Galois theory' - third year course (51 hours): 2021, 2022
- 'Introduction to linear algebra' (1100 students) - unit coordination: 2021

- ‘Algebraic topology’ - honours/masters course (48 hours): 2020
- ‘Algebraic topology’ - honours course (26 hours): 2017, 2018, 2019
- ‘Introduction to tannakian reconstruction’ - reading course in ‘Talented Students Program’: 2018
- ‘Linear algebra’ - first year course science students (26 hours): 2016

8.2 Ghent University

- Exercise lectures + organisation of computer labs for ‘Mathematical analysis II’, Bachelor of Engineering (80 hours): 2015
- Exercise lectures and computer labs for ‘Geometry and linear algebra’, Bachelor of Engineering (60 hours): 2010, 2015
- Exercise lectures for ‘Integral geometry and Clifford analysis’, Master of Mathematics (30 hours): 2009, 2011, 2012
- ‘Basic mathematical techniques’, Bachelor of Engineering (30 hours): 2008, 2009, 2010, 2011, 2012

9 Research visits - visiting positions

- Max Planck Institute for Mathematics (August-September 2023, Bonn, Germany) visiting Catharina Stroppel
- Mathematical Research Institute Oberwolfach (January 2021, Germany) research in pairs with Ivan Penkov and Vera Serganova (cancelled due to Covid)
- Weizmann Institute of Science (December 2018, Tel Aviv, Israel) visiting Maria Gorelik
- Max Planck Institute for Mathematics (October-November 2018, Bonn, Germany) visiting Catharina Stroppel
- Academia Sinica (January 2018, Taipei, Taiwan) visiting Shun-Jen Cheng
- National Center for Theoretical Sciences (July 2017, Taipei, Taiwan) visiting Shun-Jen Cheng
- University of Cologne (August-December 2014, Cologne, Germany) visiting Alexander Alldridge
- University of California-Berkeley (January-June 2014, Berkeley, USA) visiting Vera Serganova
- Uppsala University (September-December 2013, Uppsala, Sweden) visiting Volodymyr Mazorchuk
- The University of Sydney (January-April 2013, Sydney, Australia) visiting Ruibin Zhang
- University of Science and Technology China (June-July 2012, Hefei, China) visiting Ruibin Zhang
- Charles University (February 2012, Prague, Czech republic) visiting Vladimir Souček
- The University of Sydney (February-March 2011, Sydney, Australia) visiting Ruibin Zhang
- The University of Sydney (October-November 2010, Sydney, Australia) visiting Ruibin Zhang