D. Lukas B. Brantner – Curriculum Vitae

ACADEMIC POSITIONS

Mathematical Institute, Oxford University, Oxford, United Kingdom — Oct 2021 –
Royal Society University Research Fellow. On leave: Feb 2022 – Jan 2023

CNRS, Université Paris-Saclay, Orsay, France — Feb 2022 – Jan 2023
Chargé de Recherche — En détachement: Feb 2023 –

Merton College, Oxford University, Oxford, United Kingdom
Junior Research Fellow for Mathematics — Oct 2018 – Sep 2021
and Julia de Lacy Mann Fellow — Nov 2021 – Feb 2022

Mathematical Sciences Research Institute, Berkeley, United States of America — Jan 2019 – May 2019
Stephen Della Pietra Fellow during special semester on Derived Algebraic Geometry

Max Planck Institute for Mathematics, Bonn, Germany — Sep 2017 – Sep 2018
Researcher (Scientific Assistant)

EDUCATION

Harvard University, Cambridge, United States of America — Sep 2012 –May 2017
Doctor of Philosophy (Ph.D.) in Mathematics
Thesis: The Lubin-Tate Theory of Spectral Lie Algebras. Advisor: Jacob Lurie.
Minor Thesis: The p-adic Hodge Theory of Semistable Galois Representations (with Mark Kisin)

University of Cambridge, St. John's College, Cambridge, United Kingdom — Oct 2008 – Jun 2012
Bachelor of Arts (hons), Master of Mathematics
First (highest class) in Part IA, Part IB, Part II, Distinction (highest class) in Part III.
Top of the tripos (out of $\simeq 250$) in 2009. 4^{th} Wrangler.
Essay: Abelian and Nonabelian Hodge Theory (with Ian Grojnowski)

Friedrich Gymnasium and Albert-Ludwigs Universität, Freiburg, Germany
First year of diploma course physics (grade average: 1.0). — Nov 2007 – Jul 2008
Abitur (graduated early, grade average: 1.0). — – Aug 2007
Attended astrophysics classes at university while in high school

EXTENDED RESEARCH VISITS

- Mittag-Leffler Institute, Stockholm — Mar 2022, Apr 2022
- University of California, Berkeley (Guest of Peter Teichner) — Mar 2018 – Apr 2018
- Stockholm University (Guest of Gregory Arone) — Apr 2016 Nov 2017
- Hausdorff Center for Mathematics, Bonn — May 2015, Nov 2016
- Undergraduate Research Fellow, California Institute of Technology — Jul 2010 – Sep 2010
  Project: Stable Commutator Length in Free Groups. Advisor: Danny Calegari

PUBLICATIONS

[11] Brantner, Lukas, Joost Nuiten, Kirill Magidson, "Formal Integration of Derived Foliations". 89 pages. Available at arXiv:2502.05257.

[10] Antolín-Camarena, Omar, Lukas Brantner, Gijs Heuts, "Poincaré–Birkhoff–Witt Theorems in Higher Algebra". 14 pages. Submitted. Available at arXiv:2501.03116.

[9] Brantner, Lukas, Lenny Taelman, "Deformations & Lifts of Calabi–Yau Varieties in Characteristic p". *77 pages. Submitted. Available at arXiv:2407.09256.*

[8] Brantner, Lukas, Ricardo Campos, Joost Nuiten, "PD Operads and Explicit Partition Lie Algebras". *105 pages. To appear in the Memoirs of the AMS. arXiv:2104.03870.*

[7] Brantner, Lukas, Joe Waldron, "Purely Inseparable Galois Theory I: The Fundamental Theorem". *36 pages. Submitted. Available at arXiv:2010.15707.*

[6] Brantner, Lukas, Jeremy Hahn, Ben Knudsen, "The Lubin-Tate Theory of Configuration Spaces". *61 pages. Published. Journal of Topology, 17, no.4 (2024). arxiv:1908.11321.*

[5] Brantner, Lukas, Akhil Mathew "Deformation Theory and Partition Lie Algebras". *91 pages. To appear in Acta Mathematica. arXiv:1904.07352.*

[4] Arone, Gregory, Lukas Brantner, "The Action of Young Subgroups on the Partition Complex". *110 pages. Published. Publications Mathématiques de l'IHÉS, 113 (2021)*: 47–156.

[3] Brantner, Lukas, "The Lubin-Tate Theory of Spectral Lie Algebras", 160 pages. Harvard Thesis. Available at https://people.maths.ox.ac.uk/brantner/brantnerthesis.pdf.

[2] Brantner, Lukas, Gijsbert Heuts, "The v_n-periodic Goodwillie Tower on Wedges and Cofibres". *18 pages. Published. Homology, Homotopy and Applications*, 22.1 (2020): 167-184.

[1] Brantner, Lukas, (Appendix: F. Manners), "On the Complexity of Sails". *30 pages. Published. Pacific Journal of Mathematics*, 258.1 (2012): 1-30.

FORTHCOMING

[12] Brantner, Lukas, Jeremy Hahn, Gijs Heuts, Allen Yuan, "On Φ-good Spaces".

CONFERENCE TALKS

- British Topology Meeting, Aberdeen — Aug 2024
- Homotopy theory workshop, Stockholm — Jun 2024
- "Homotopy Theory in Trondheim", Trondheim — Jun 2023
- "A Panorama of Homotopy Theory — A Conference in Honour of Mike Hopkins", Oxford — Jun 2023
- "Barcelona Conference on Higher Structures", Barcelona — Jun 2022
- "Nankai Symposium on Mathematical Dialogues", Nankai — Aug 2021
- Oberwolfach Arbeitsgemeinschaft "Derived Galois Deformation Rings and Cohomology of Arithmetic Groups". Report: publications.mfo.de/handle/mfo/3907. — Apr 2021
- "Derived Geometry, Symplectic Geometry, and Representation Theory", Montpellier — Dec 2019
- Oberwolfach Workshop "Homotopy Theory". Report: publications.mfo.de/handle/mfo/3784 — Aug 2019
- Oberwolfach Arbeitsgemeinschaft "Elliptic Cohomology according to Lurie". Report: publications.mfo.de/handle/mfo/3748. — Mar 2019
- Transpennine Topology Triangle, Sheffield — Oct 2018
- Oberwolfach Workshop "Topologie". Report: publications.mfo.de/handle/mfo/3653. — Jul 2018
- Workshop on ∞-Operads, Utrecht — Jun 2018
- Banff Workshop on Operations in Highly Structured Homology Theories, Recording of talk: https://open.library.ubc.ca/cIRcle/collections/birs/items/1.0339952. — May 2016

SEMINAR TALKS

- Rome Tor Vergata Geometry Seminar — Apr 2024
- Princeton Topology Seminar — Apr 2024
- Sheffield Topology Seminar — Dec 2023
- EPFL Topology Seminar — Apr 2023
- MIT Topology Seminar — Nov 2022
- Utrecht University and Radboud University Nijmegen Topology Seminar — Nov 2022
- University of Toulouse Homotopy and Algebraic Geometry Seminar — Oct 2022
- Strasbourg University Algebraic Topology Seminar — Jul 2022
- University of Copenhagen Algebraic Topology Seminar — Jun 2022
- Mittag Leffler Institute Higher Algebraic Structures Seminar — Mar 2022
- Strasbourg University Algebraic Geometry Seminar — Mar 2022
- Orsay Algebraic and Arithmetic Geometry Seminar — Feb 2022
- Oxford University Topology Seminar — Jan 2022
- Oxford University Algebraic Geometry Seminar — Nov 2021
- Southampton Pure Mathematics Colloquium — Oct 2021
- Essen RTG Seminar — May 2021
- Harvard–MIT Algebraic Geometry Seminar — Mar 2021
- University of Maryland Algebra-Number Theory Seminar — Jan 2021
- Universität Hamburg Topologieseminar — Jan 2021
- Norwegian Homotopy Seminar — May 2020
- University of Copenhagen Algebraic Topology Seminar — Dec 2019
- University of Aberdeen Topology Seminar — Nov 2019
- University of Warwick Algebraic Topology Seminar — Oct 2019
- Princeton University Algebraic Geometry Seminar — Sep 2019
- Oxford University Algebraic Geometry Seminar — Jun 2019
- Paris 13 Séminaire de Topologie Algébrique — May 2019
- MIT Topology Seminar — Apr 2019
- MSRI Derived Algebraic Geometry Seminar — Mar 2019
- Electronic Computational Homotopy Theory Seminar — Jan 2019
- Oxford University Topology Seminar — Oct 2018
- University of Chicago Topology Seminar — Apr 2018
- Universität Bonn Topologieseminar — Jan 2018
- KTH / Stockholm Topology Seminar — Nov 2017
- Johns Hopkins University Topology Seminar — Feb 2017
- University of Chicago Topology Seminar — Jan 2017
- University of Copenhagen Topology Seminar — Jan 2017
- Hausdorff Institute Bonn, Trimester Program — Nov 2016
- Oxford University Topology Seminar — Sep 2016
- KTH / Stockholm University Algebra and Geometry Seminar — Apr 2016

MINICOURSE

- Max Planck Institute for Mathematics, Bonn. "The Partition Complex". — Jan 2018

SELECTED AWARDS / MERIT SCHOLARSHIPS

- Successful application to Royal Society Enhanced Research Expenses scheme (£ 400.000). 2023
- Laureate of CNRS Chargé de Recherche competition. 2021
- Award of Royal Society University Research Fellowship. 2021
- ERP Scholar, German Academic Scholarship Foundation, (research stipend, $ 91.400). 2013-2015
- Bayliss Scholarship, Wright Prize, St. John's College (for students with best exams). 2009-2012
- Study Abroad Scholarship, German Academic Scholarship Foundation. 2011
- Master's Prize, St. John's College, Cambridge, for my Paper 'On the Complexity of Sails". 2011
- Ian Hall Year Prize, Adams Prize, St. John's College, 2011
  for "the top-performing mathematicians of the mathematical tripos".
- German Academic Exchange Service (DAAD) Scholarship. 2010
- Lapwood-Towle Prize, St. John's College, Cambridge. 2010
- Johnston Year Prize, Leathem Prize 2009
  for being the top scoring mathematician in the university (out of $\simeq$ 250 students).
- Study Abroad Scholarship, German Academic Scholarship Foundation. 2008
- Member of German Academic Scholarship Foundation (Studienstiftung des Deutschen Volkes). 2008–

SUPERVISION

- Postdoc: Simon Felten (2024 –).
- PhD students: Jiaqi Fu (joint supervision with Toën, 2022–), Sofía Marlasca Aparicio (2022–), Samuel Moore (jointly with Henriques, 2024–), Noé Sotto (jointly with Harpaz, 2022–).
- Supervised 5 summer projects (Nathan Adlam, Inés Borchers Arias ($\times 2$), Maliha Islam, Samuel Moore) and 13 undergraduate dissertations (Oxford Part B and C).

TEACHING

- Lecturer for Oxford Part B course on Galois Theory. 2025
- Lecturer for Oxford Part C course on Category Theory. 2024
- TCC course at Oxford on "∞-Categories and deformation theory". 2024
- Designed/lectured graduate classes on "∞-Categories in Algebraic Geometry" at Orsay. 2022
- Designed and led Oxford advanced classes on the following topics:
  Prismatic Cohomology (Fall 2021), Condensed Mathematics (Spring 2021),
  Configuration spaces and manifold calculus (Fall 2020), Rational homotopy theory of
  automorphisms of manifolds (Spring 2020), Chromatic Homotopy Theory (Fall 2018).
- Director of Studies for Merton's Part C students. 2020/2021
- College Advisor for several Master/DPhil students at Merton. 2020/2021
- Designed/lectured graduate classes on "Topics in Koszul Duality" at Oxford. 2019
- Delivered tutorials for the following courses at Oxford:
  "Geometry", "Groups and Group Actions", "Linear Algebra" (Year 1 and 2),
  "Topology", "Analytic Topology", "Rings and Modules", and "Number Theory".
- Lectured Vector Calculus (Math 21a) at Harvard. 2015, 2017
- Teaching apprenticeship with Janet Chen (included video coaching of calculus teaching). 2015
- Completed calculus teaching course (Math 300) at Harvard (included video coaching). 2012

SERVICE

- Referee for grants and journals, including Algebraic & Geometric Topology, Bulletin of the London Mathematical Society, Forum of Mathematics, Sigma, Forum of Mathematics, Pi, Geometry & Topology, Journal für die reine und angewandte Mathematik (Crelle), Journal of the London Mathematical Society, Journal of Topology, Publications mathématiques de l'IHÉS, Memoirs of the AMS, Selecta Mathematica, Transactions of the American Mathematical Society, Quarterly Journal of Mathematics.
- Guest editor for special issue on "Derived Lie Algebras in Geometry and Topology" for Philosophical Transactions of the Royal Society A.
- Member of selection panel for German Academic Scholarship Foundation. May 2021
- Examiner/assessor for written exams and Master/DPhil theses at Oxford.
- Organiser of Oxford topology seminar. Oct 2023–
- Organised conference "Generalised Lie algebras in Derived Geometry", Utrecht University May 2023
- Organised mini-conference "Homotopical methods in algebraic geometry", IHP, Paris. Mar 2023
- Organised twin conference "Homotopy Theory with Applications to Arithmetic & Geometry", Jun 2022
  Max Planck Institute for Mathematics (Bonn) and Fields Institute (Toronto).
- Member of selection panel for German Academic Scholarship Foundation. 2021
- Member of Governing Body and trustee of Merton College (as JRF), serving on various committees and as Health & Safety Representative for Academic Staff during the pandemic. 2018-2021
- Carried out yearly undergraduate admission interviews for Merton College. 2018-2021

- Organised twin conference “Higher Algebra and Mathematical Physics” Aug 2018
  Max Planck Institute for Mathematics (Bonn) and Perimeter Institute (Waterloo).
- Organised block seminar “Elliptic Cohomology” at Berkeley. 2018
- Organised “Juvitop seminar” (Harvard-MIT Graduate Topology Seminar). 2014/2015
- Organised “Trivial Notions seminar” (Harvard graduate student seminar). 2013/2014
- President of the Adams’ Society (Mathematical society of St. John’s College). 2010/2011

LANGUAGES

- German: Native. English: Fluent (IELTS). French: Fluent (DALF C1). Spanish: Beginner.