James Alexander Mabyn Read

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Employment

2018 - **Associate Professor**, Faculty of Philosophy, University of Oxford
Tutorial Fellow, Pembroke College, University of Oxford

Education

2018 **D.Phil. Doctor of Philosophy** (Pass with no corrections.)
Hertford College, University of Oxford, UK
Supervisors: Prof. Harvey R. Brown and Dr. Oliver Pooley
Examiners: Dr. Adam Caulton and Dr. Jeremy Butterfield

2016 **B.Phil. Bachelor of Philosophy** (First in cohort.)
Merton College, University of Oxford, UK
Supervisor: Dr. Oliver Pooley

2014 **M.A.St. Master of Advanced Study in Mathematics (Part III)**
Trinity College, University of Cambridge, UK

2013 **M.Phys.Phil. Master of Physics and Philosophy** (First in cohort.)
Oriel College, University of Oxford, UK

Awards and Scholarships

2022 **Recognition of Teaching Excellence**, Pembroke College, University of Oxford (Also in 2024.)

2018 **The Robert K. Clifton Memorial Prize** for best presented paper at the Logic-Math-Physics conference, Western University, London, Canada

2017 **Space and Time After Quantum Gravity Visiting Fellowship**, University of Illinois at Chicago

2016 **The Hanneke Janssen Memorial Prize** for best thesis in the History and Foundations of Physics (International award)
The Gilbert Ryle Prize for highest distinction in the B.Phil. in Philosophy, University of Oxford
The Michael Ferrar Senior Scholarship, Hertford College, University of Oxford

2014 **AHRC Scholarship** for the B.Phil. and D.Phil. in Philosophy, University of Oxford (2014-2018)

2013 **Studentship in Mathematics**, Trinity College, University of Cambridge
Gibbs Prize for best performance in Physics in the Honour School of Physics and Philosophy, University of Oxford
The John Thresher Prize for best M.Phys. project in Particle Physics, University of Oxford

2012 **Gibbs Prize** for best performance in Philosophy in the Honour School of Physics and Philosophy, University of Oxford

2011 **Physics Department Book Prize** for speaking, University of Oxford

2010 **Undergraduate Scholarship**, Oriel College, University of Oxford
College Collection/Essay Prizes $\times 10$, Oriel College, University of Oxford (2010-2012)

Publications

Monographs

1. James Read, *Special Relativity*, Cambridge: Cambridge University Press, 2023.

2. James Read, *Background Independence in Classical and Quantum Gravity*, Oxford: Oxford University Press, 2023.

3. Emily Adlam, Niels Linnemann and James Read, *Constructive Axiomatics in Spacetime Physics*, Oxford: Oxford University Press, 2025. (In production.)

Edited Volumes

4. James Read and Nicholas J. Teh (eds.), *The Philosophy and Physics of Noether's Theorems*, Cambridge: Cambridge University Press, 2022.

Articles in Peer-Reviewed Journals

5. Yang-Hui He, John McKay and James Read, "Modular Subgroups, Dessins d'Enfants and Elliptic K3 Surfaces", *LMS Journal of Computation and Mathematics* 16, pp. 271-318, 2013.

6. Yang-Hui He and James Read, "Dessins d'Enfants in $\mathcal{N} = 2$ Generalised Quiver Theories", *Journal of High Energy Physics* 85(8), 2015.

7. Yang-Hui He and James Read, "Hecke Groups, Dessins d'Enfants and the Archimedean Solids", *Frontiers in Physics* 3(91), 2015.

8. James Read, "The Interpretation of String-Theoretic Dualities", *Foundations of Physics* 46(2), pp. 209-235, 2016.

9. Harvey R. Brown and James Read, "Clarifying Possible Misconceptions in the Foundations of General Relativity", *American Journal of Physics* 84(5), pp. 327-334, 2016.

10. James Read, "In Defence of Everettian Decision Theory", *Studies in History and Philosophy of Modern Physics* 63, pp. 136-140, 2018.

11. Yang-Hui He, Zhi Hu, Malte Probst and James Read, "Yang-Mills Theory and the ABC Conjecture", *International Journal of Modern Physics A* 33(13), 2018.

12. James Read, Harvey R. Brown and Dennis Lehmkuhl, "Two Miracles of General Relativity", *Studies in History and Philosophy of Modern Physics* 64, pp. 14-25, 2018.

13. James Read and Nicholas J. Teh, "The Teleparallel Equivalent of Newton-Cartan Gravity", *Classical and Quantum Gravity* 35, 18LT01, 2018.

14. Baptiste Le Bihan and James Read, "Duality and Ontology", *Philosophy Compass* 13, e12555, 2018.

15. James Read, "On Miracles and Spacetime", *Studies in History and Philosophy of Modern Physics* 65, pp. 103-111, 2019.

16. Patrick Dürr and James Read, "Gravitational Energy in Newtonian Gravity—A Response to Dewar and Weatherall", *Foundations of Physics* 49, pp. 1086-1110, 2019.

17. James Read, "Functional Gravitational Energy", *British Journal for the Philosophy of Science* 71, pp. 205-232, 2020.

18. James Read and Thomas Møller-Nielsen, "Motivating Dualities", *Synthese* 197, pp. 263-291, 2020.

19. James Read and Thomas Møller-Nielsen, "Redundant Epistemic Symmetries", *Studies in History and Philosophy of Modern Physics* 70, pp. 88-97, 2020.

20. James Read, "Geometrical Constructivism and Modal Relationalism: Further Aspects of the Dynamical/Geometrical Debate", *International Studies in the Philosophy of Science* 33, pp. 23-41, 2020.

21. Neil Dewar and James Read, "Conformal Invariance of the Newtonian Weyl Tensor", *Foundations of Physics* 50, pp. 1418-1425, 2020.

22. Tushar Menon, Niels Linnemann and James Read, "Clocks and Chronogeometry: Rotating Spacetimes and the Relativistic Null Hypothesis", *British Journal for the Philosophy of Science* 71, pp. 1287-1317, 2020.

23. Niels Linnemann and James Read, "On the Status of Newtonian Gravitational Radiation", *Foundations of Physics* 51(53), 2021.

24. Jiakang Bao, Omar Foda, Yang-Hui He, Edward Hirst, James Read, Yan Xiao and Futoshi Yagi, "Dessins d'Enfants, Seiberg-Witten Curves and Conformal Blocks", *Journal of High Energy Physics* 65, 2021.

25. Bryan Cheng and James Read, "Why Not a Sound Postulate?", *Foundations of Physics* 51(72), 2021.

26. James Read and Sumana Sharma, "Hypothesis-driven Science in Large-scale Studies: The Case of GWAS", *Biology & Philosophy* 36(46), 2021.

27. Niels Linnemann and James Read, "Comment on 'Do Electromagnetic Waves Always Propagate Along Null Geodesics?' ", *Classical and Quantum Gravity* 38, 238001, 2021.

28. James Read and Emily Qureshi-Hurst, "Getting Tense About Relativity", *Synthese* 198, pp. 8103-8125, 2021.

29. James Read and Tushar Menon, "The Limitations of Inertial Frame Spacetime Functionalism", *Synthese* 199, pp. 229-251, 2021.

30. Niels C. M. Martens and James Read, "Sophistry About Symmetries?", *Synthese* 199, pp. 315-344, 2021.

31. James Read and Baptiste Le Bihan, "The Landscape and the Multiverse: What's the Problem?", *Synthese* 199, pp. 7749-7771, 2021.

32. Niels Linnemann and James Read, "Miracles Persist: A Reply to Sus", *European Journal for Philosophy of Science* 12(18), 2022.

33. Neil Dewar, Niels Linnemann and James Read, "The Epistemology of Spacetime", *Philosophy Compass* 17, e12821, 2022.

34. James Read and Bryan Cheng, "Euclidean Spacetime Functionalism", *Synthese* 200, pp. 1-22, 2022.

35. James Read and Nicholas J. Teh, "Newtonian Equivalence Principles", *Erkenntnis* 88, pp. 3479–3503, 2023.

36. William J. Wolf, James Read and Nicholas J. Teh, "Edge Modes and Dressing Fields for the Newton-Cartan Quantum Hall Effect", *Foundations of Physics* 53(3), 2023.

37. Marta Bielińska and James Read, "Testing Spacetime Orientability", *Foundations of Physics* 53(8), 2023.

38. Sebastián Murgueitio Ramírez, James Read and Andrés Páez, "Causation and the Conservation of Energy in General Relativity", forthcoming in *British Journal for the Philosophy of Science*, 2023.

39. William J. Wolf and James Read, "Respecting Boundaries: Theoretical Equivalence and Structure Beyond Dynamics", *European Journal for Philosophy of Science* 13(47), 2023.

40. Sundance O. Bilson-Thompson, Scott L. Todd, James Read, Valentia Baccetti and Nicolas C. Menicucci, "Tachyonic Media in Analogue Models of Special Relativity", *Physical Review D* 108, 124020, 2023.

41. Lu Chen and James Read, "Is the Metric Signature Really Electromagnetic in Origin?", *Philosophy of Physics* 1(1), 2023.

42. Tushar Menon and James Read, "Some Remarks on Recent Formalist Responses to the Hole Argument", *Foundations of Physics* 54(6), 2023.

43. Guy Hetzroni and James Read, "How to Teach General Relativity", forthcoming in *British Journal for the Philosophy of Science*, 2023.

44. Felipe A. Asenjo, Sergio A. Hojman, Niels Linnemann and James Read, "Abnormal Light Propagation and the Underdetermination of Theory by Evidence in Astrophysics", *Annals of Physics* 460, 169552, 2024.

45. Niels Linnemann, James Read and Nicholas J. Teh, "The Local Validity of Special Relativity from a Scale-Relative Perspective", forthcoming in *British Journal for Philosophy of Science*, 2024.

46. Patrick Dürr and James Read, "An Invitation to Conventionalism: A Philosophy for Modern (Space-)times", *Synthese* 204(1), 2024.

47. Eleanor March, William J. Wolf and James Read, "On the Geometric Trinity of Gravity, Non-Relativistic Limits, and Maxwell Gravitation", *Philosophy of Physics* 2(1), 2024.

48. Ruward Mulder and James Read, "Is Spacetime Curved? Assessing the Underdetermination of General Relativity and Teleparallel Gravity", *Synthese* 204(126), 2024.

49. Eleanor March, James Read, Nicholas J. Teh and William J. Wolf, "Some Remarks on Recent Approaches to Torsionful Non-Relativistic Gravity", *Foundations of Physics* 54(75), 2024.

50. William J. Wolf, Marco Sanchioni and James Read, "Underdetermination in Classic and Modern Tests of General Relativity", *European Journal for Philosophy of Science* 14(57), 2024.

51. Johannes Fankhauser and James Read, "Gravitational Redshift Revisited: Inertia, Geometry, and Charge", *Studies in History and Philosophy of Science* 108, pp. 19–27, 2024.

52. William J. Wolf, James Read and Quentin Vigneron, "The Non-Relativistic Geometric Trinity of Gravity", *General Relativity and Gravitation* 56(126), 2024.

53. Matěj Krátký and James Read, "On Functional Freedom and Penrose's Critiques of String Theory", *Philosophy of Physics* 2(1), 2024.

54. Gregor Gajic, Nikesh Lilani and James Read, "Another Philosophical Look at Twistor Theory", *European Journal for Philosophy of Science* 15(2), 2025.

55. Oliver Pooley and James Read, "On the Mathematics and Metaphysics of the Hole Argument", *British Journal for the Philosophy of Science* 76(1), 2025.

56. Sam Baron, Baptiste Le Bihan and James Read, "Scientific Theory and Possibility", forthcoming in *Erkenntnis*, 2025.

57. Eleanor March and James Read, "A Primer on Carroll Gravity", forthcoming in *Classical and Quantum Gravity*, 2025.

58. Caspar Jacobs and James Read, "Absolute Representations and Modern Physics", forthcoming in *European Journal for Philosophy of Science*, 2025.

59. Eleanor March, James Read and Lu Chen, "Equivalence, Reduction, and Sophistication in Teleparallel Gravity", forthcoming in *European Journal for Philosophy of Science*, 2024.

Articles in Peer-Reviewed Collections

60. James Read, "Explanation, Geometry, and Conspiracy in Relativity Theory", in C. Beisbart, T. Sauer and C. Wüthrich (eds.), *Thinking About Space and Time: 100 Years of Applying and Interpreting General Relativity*, Einstein Studies series, vol. 15, Basel: Birkhäuser, 2020.

61. Harvey R. Brown and James Read, "The Dynamical Approach to Spacetime Theories", in E. Knox and A. Wilson (eds.), *The Routledge Companion to Philosophy of Physics*, London: Routledge, 2021.

62. James Read, "Geometric Objects and Perspectivalism", in J. Read and N. Teh (eds.), *The Philosophy and Physics of Noether's Theorems*, Cambridge: Cambridge University Press, 2022.

63. Bryan Cheng and James Read, "Shifts and Reference", in A. Vassallo (ed.), *The Foundations of Spacetime Physics: Philosophical Perspectives*, London: Routledge, 2022.

64. James Read, "Getting Off the Hoek With Newton's Laws", in *CLMPST Proceedings*, College Publications, 2025.

Encyclopedia Articles

65. Carl Hoefer, Nick Huggett and James Read, "Absolute and Relational Space and Motion: Classical Theories", in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, 2021.

66. Carl Hoefer, Nick Huggett and James Read, "Absolute and Relational Space and Motion: Post-Newtonian Theories", in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, 2021.

67. John Norton, Oliver Pooley and James Read, "The Hole Argument", in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, 2023.

Popular Articles

68. James Read, "The State of Play in the Philosophy of Physics", *Aeon*, 2025.

Book Reviews

69. James Read, "Review of *The World in the Wave Function*, by Alyssa Ney", *Mind* 133(530), pp. 560–571, 2024.

70. Franciszek Cudek and James Read, "Review of *Accelerating Expansion: Philosophy and Physics with a Positive Cosmological Constant*, by Gordon Belot", forthcoming in *Foundations of Physics*, 2024.

71. Niels Linnemann and James Read, "Review of *The Philosophy of Symmetry*, by Nicholas J. Teh", forthcoming in *Journal for General Philosophy of Science*, 2025.

Article Reviews

72. James Read, "Review of "On the Ostrogradski Instability; or, Why Physics Really Uses Second Derivatives", by Noel Swanson", *Mathematical Reviews*, 2022.

73. James Read, "Review of "Teleparallel Newton-Cartan Gravity", by Philip K. Schwartz", *Mathematical Reviews*, 2023.

74. James Read, "Review of "Quantum Uncertainty as an Intrinsic Clock", by Etera K. Livine", *Mathematical Reviews*, 2024.

75. James Read, "Review of "Logic Meets Wigner's Friend (and their Friends)", by Alexandru Baltag and Sonja Smets", *Mathematical Reviews*, 2024.

76. James Read, "Review of "Epistemic-Pragmatist Interpretations of Quantum Mechanics: A Comparative Assessment", by Ali Barzegar and Daniele Oriti", *Mathematical Reviews*, 2025.

Teaching Resources

77. Baptiste Le Bihan and James Read, "Teaching and Learning Guide for: Duality and Ontology", *Philosophy Compass* 13, e12556, 2018.

78. Neil Dewar, Niels Linnemann and James Read, "Teaching and Learning Guide for: The Epistemology of Spacetime", *Philosophy Compass* 17, e12875, 2022.

Articles Submitted to Peer-Reviewed Collections or Journals

79. Bryan Cheng and James Read, "The Hole Argument and Putnam's Paradox", submitted to *Synthese*, 2024.

80. Henrique Gomes, Tushar Menon, Oliver Pooley and James Read, "How to Recover Spacetime Structure from Privileged Coordinates", submitted to *Philosophy of Physics*, 2024.

81. James Read, "Good VIBES Only", submitted to *Synthese*, 2024.

82. Pedro G. Ferreira, William J. Wolf and James Read, "The Spectre of Underdetermination in Modern Cosmology", submitted to *Philosophy of Physics*, 2025.

83. William J. Wolf and James Read, "Navigating Permanent Underdetermination in Dark Energy and Inflationary Cosmology", submitted to *British Journal for the Philosophy of Science*, 2025.

84. Ripunjay Dwivedi and James Read, "Quantum Mechanics on Carroll Spacetimes", submitted to *Classical and Quantum Gravity*, 2025.

85. James Read and William J. Wolf, "Clarifying Coincident General Relativity", submitted to *Philosophy of Science*, 2025.

86. Pablo Acuña and James Read, "Qualification and explanation in the dynamical/geometrical debate", submitted to *European Journal for Philosophy of Science*, 2025.

Archive-only Articles

Note: items 87–89 are superseded by item 3.

87. Niels Linnemann and James Read, "Constructive Axiomatics in Spacetime Physics Part I: Walkthrough to the Ehlers-Pirani-Schild Axiomatisation", 2021.

88. Emily Adlam, Niels Linnemann and James Read, "Constructive Axiomatics in Spacetime Physics Part II: Constructive Axiomatics in Context", 2022.

89. Emily Adlam, Niels Linnemann and James Read, "Constructive Axiomatics in Spacetime Physics Part III: A Constructive Axiomatic Approach to Quantum Spacetime", 2022.

90. James Read, "23 Open Problems in Philosophy of Physics", 2025.

Translations

91. Mayadevi Sharma, *Urmila*, Nepal, 2014. Translated from Nepali to English by J. Read and S. Sharma, 2024.

Grants

1. **A New Philosophy of Symmetry: Gauge, Composition, and Empirical Content**, John Templeton Foundation. Co-PI: Prof. Nicholas J. Teh (Notre Dame). Value: $230,503. July 2020 to July 2022. (Renewed August 2024.)

2. **Re-fashioning Galileo's Ship: A Philosophy of Symmetry for the 21st Century**, National Science Foundation. Co-PI: Prof. Nicholas J. Teh (Notre Dame). Value: $239,926. April 2020 to April 2022.

3. **Measuring Spacetime**, Leverhulme Trust Research Fellowship. Value: £57,572. October 2022 to September 2023.

Speaking

2025 **Workshop on Metaphysics Issues in Cosmology**, University of Lugano, CH. Title: "New Work on Cosmic Time". (Invited talk.)
Spacetime Matters Conference, University of Utrecht, NL. Title: "Regularity Relationalism and General Relativity". (Invited talk.)
European Philosophy of Science Association, University of Groningen, NL. Title: "Is String Field Theory Background Independent?"
Foundations of Physics, University of Gdańsk, Poland. Title: "Is String Field Theory Background Independent?"
British Society for the Philosophy of Science, University of Glasgow, UK. Title: "An Epistemic Approach to Hidden Symmetries and External Sophistication".
Gauge-Invariant Approaches to Physics, online seminar. Title: "Absolute Representations and Modern Physics". (Invited talk.)
Philosophy of Physics Research Seminar, Utrecht University, Utrecht, NL. Title: "Permanent Underdetermination in Dark Energy and Inflationary Cosmology". (Invited talk.)
Impossible Triangles of Thought: Opening Conference of the Radboud Center for Natural Philosophy, Radboud University, Nijmegen, NL. Title: "The Future of Philosophy of Physics in 23 Open Problems". (Invited talk.)

2024 **Philosophy of Science Association**, New Orleans, USA. Title: "Reduction, Sophistication, and Equivalence in Teleparallel Gravity".
Philosophy of Physics Seminar, University of Oxford, UK. Title: "A Primer on Carroll Gravity" (with Eleanor March).
Equivalence Principle Workshop, University of Notre Dame London

Campus, UK. Title: "The Equivalence Principle in Contemporary Philosophy of Spacetime".

Society for the Metaphysics of Science, online. Title: "Comments on Sebastián Murgueitio Ramírez, 'On the Relativity Principle' ".

Philosophy of Physics Summer Workshop, University of Oxford, UK. Title: "Reduction, Sophistication, and Equivalence in Teleparallel Gravity".

Foundations of Physics Seminar, Harvard University, Boston, Massachusetts, USA. Title: "On Functional Freedom and Penrose's Critiques of String Theory". (Invited talk.)

IV Chilean Conference in the Philosophy of Physics, Pontifical Catholic University of Chile, Santiago, Chile. Title: "Some Under-explored Issues in the Dynamics/Geometry Debate". (Invited talk.)

Philosophy of Physics Seminar, University of Oxford, UK. Title: "The Non-Relativistic Geometric Trinity of Gravity".

2023 **Third Philosophy of Physics Summer Workshop**, University of Oxford, UK. Title: "Regularity Relationism and General Relativity".

17th CLMPST, Buenos Aires, Argentina. Title: "Torretti on Newton's Laws."

First Philosophy of Physics Summer Workshop, University of Oxford, UK. Title: "Is the Metric Signature Really Electromagnetic in Origin?"

New Directions in Philosophy of Physics, Viterbo, Italy. Title: "An Invitation to Constructive Axiomatics". (Invited talk.)

Philosophy of Physics Seminar, University of Oxford, UK. Title: "An Invitation to Constructive Axiomatics".

2022 **Black Hole Institute Foundations of Physics Seminar**, Harvard University, Boston, Massachusetts, USA. Title: "Absolute Representations and Modern Physics". (Invited talk.)

Equivalence Principle Workshop, University of Notre Dame, USA. Title: "Philosophers on the Equivalence Principle". (Invited talk.)

Society for the Metaphysics of Science, University of Bristol, UK. Comments on Joshua Babic: "Mandersian Relationism: Space, Modality and Equivalence". (Invited commentary.)

General Covariance, Covariant Phase Space and Symmetry Principles, University of Notre Dame London Campus, UK. Title: "Philosophers on Non-Relativistic Gravity: Recent Work and Future Prospects". (Invited talk.)
Metaphysics Beyond Spacetime, Université de Genève, Switzerland. Title: "Absolute Representations and Modern Physics". (Invited talk.)
Philosophy of Physics Seminar, University of Bristol, UK. Title: "Absolute Representations and Modern Physics". (Invited talk.)
Easter 2022 Spacetime Workshop, University of Oxford, UK. Title: "Absolute Representations and Modern Physics".
Philosophy of Physics Seminar, University of Oxford, UK. Title: "Curvature Coupling, Electromagnetic Wave Propagation, and the Consistency of the Geometrical Optics Limit". (Invited talk.)

2021 **Lichtenberg Group Work-in-Progress Seminar**, Universität Bonn, Germany. Title: "The Philosophy of Constructive Axiomatics". (Invited talk.)
Alternative Approaches to Scientific Realism, LMU Munich, Germany. Title: "Geometric Objects and Perspectivalism". (Invited talk.)
Lichtenberg Group Work-in-Progress Seminar, Universität Bonn, Germany. Title: "Constructive Axiomatics for General Relativity". (Invited talk.)
Lichtenberg Group History and Philosophy of Physics Research Seminar, Universität Bonn, Germany. Title: "On the Null Propagation of Electromagnetic Waves". (Invited talk.)

2020 **Warsaw Philosophy of Spacetime Colloquium**, University of Warsaw, Poland. Title: "Shifts and Reference". (Invited talk.)
Black Hole Institute Foundations of Physics Seminar, Harvard University, Boston, Massachusetts, USA. Title: "On the Null Propagation of Electromagnetic Waves". (Invited talk.)
Black Hole Institute Foundations of Physics Seminar, Harvard University, Boston, Massachusetts, USA. Title: "Constructive Axiomatics for General Relativity". (Invited talk.)
Trinity Term Philosophy of Physics Graduate Seminar, University of

Oxford, UK. Title: "Geometric Objects, Natural Kinds, and Fragmentalist Philosophy".
BBLOC Seminar, King's College, London, UK. Title: "Newtonian Equivalence Principles". (Invited talk.)
Pembroke College Physics Society, Pembroke College, University of Oxford, UK. Title: "The Conventionality of Geometry". (Invited talk.)
The Foundations of Cosmology and Quantum Gravity, New York University Abu Dhabi, UAE. Title: "Background Independence and Quantum Gravity". (Invited talk.)

2019 **Goldsmiths' Sutherland Centre for Philosophy and World Religions Launch**, University of Manchester, UK. Title: "Modern Physics and the Philosophy of Time". (Invited talk.)
Philosophy Society, Faculty of Philosophy, University of Oxford, UK. Title: "'To Limn a Gauge-Free Reality': Recent Debates in the Philosophy of Symmetries". (Invited talk.)
First Oxford-Notre Dame-Bonn Workshop in the Foundations of Spacetime Theories, Pembroke College, University of Oxford, UK. Title: "Newton-Cartan, Weyl Geometry, and Teleparallelisation: Joining the Dots in the Space of Spacetime Theories".
Oriel College Philosophy Society, Oriel College, University of Oxford, UK. Title: "Getting Tense About Relativity". (Invited talk.)

2018 **Philosophy of Science Association**, Seattle, Washington, USA. Title: "Inertia and Teleparallelization".
Fourth Cambridge Simplex Meeting, University of Cambridge, UK. Title: "Sophistry About Symmetries?" (Invited talk.)
Philosophy of Logic, Math and Physics Conference, Western University, London, Ontario, Canada. Title: "On Miracles and Spacetime".
Third Cambridge Simplex Meeting, University of Cambridge, UK. Title: "Geometry and Conspiracy in Relativity Theory". (Invited talk.)
Modality in Physics, Jagiellonian University, Kraków, Poland. Title: "Geometry and Conspiracy in Relativity Theory".
First Cambridge Simplex Meeting, University of Cambridge, UK. Title: "The Limitations of Inertial Frame Spacetime Functionalism". (Invited talk.)
Sigma Club, London School of Economics, London, UK. Title: "Geom-

etry and Conspiracy in Relativity Theory". (Invited talk.)

Graduate Philosophy of Physics Workshop, Notre Dame University, South Bend, Indiana, USA. Title: "On Miracles and Spacetime". (Invited talk.)

Workshop on Spacetime Functionalism, Université de Genève, Switzerland. Title: "Euclidean Spacetime Functionalism".

Philosophy Club, University of Illinois at Chicago, Illinois, USA. Title: "Spacetime: What is it Good For?". (Invited talk.)

Philosophy of Physics Seminar, University of Michigan, Ann Arbor, Michigan, USA. Title: "On Miracles and Spacetime". (Invited talk.)

2017 **Spacetime: Fundamental or Emergent?**, Universität Bonn, Germany. Title: "On Miracles and Spacetime". (Invited talk.)

100 Years of Applying and Interpreting General Relativity, Universität Bern, Switzerland. Title: "Two Miracles of General Relativity".

European Philosophy of Science Association, University of Exeter, UK. Title: "Two Miracles of General Relativity".

European Conference for Analytic Philosophy, LMU Munich, Germany. Title: "Motivating Dualities".

British Society for the Philosophy of Science, University of Edinburgh, UK. Title: "Background Independence".

Symmetries and Asymmetries in Physics, Leibniz Universität Hanover, Germany. Comments on Erik Curiel, "The Problem of Approximate Symmetries in General Relativity". (Invited commentary.)

Philosophical Foundations of Quantum Gravity, Université de Genève, Switzerland. Comments on Mark Shumelda, "A Tale of Two Machs: Relationalism in Quantum Gravity". (Invited commentary.)

2016 **The Hanneke Janssen Prize Award Ceremony**, Radboud University, Nijmegen, Netherlands. Title: "Background Independence". (Invited talk.)

Michaelmas Term Philosophy of Physics Graduate Seminar, University of Oxford, UK. Title: "Two Miracles of General Relativity".

Space and Time After Quantum Gravity Summer School, Williams Bay, Wisconsin, USA. Title: "Singular Spacetimes and Black Holes".

Quantum Gravity Seminar, University of Illinois at Chicago, Illinois, USA. Title: "Background Independence and Holography".

2015 **Michaelmas Term Philosophy of Physics Graduate Seminar**, University of Oxford, UK. Title: "Decision Theory and Subjective Probability in Everettian Quantum Mechanics".
Trinity Term Philosophy of Physics Graduate Seminar, University of Oxford, UK. Title: "The Interpretation of String-Theoretic Dualities".
DPG Working Group in Philosophy of Physics, TU Berlin, Germany. Title: "Gravitational Energy in General Relativity".

2011 **Physics Speaking Series Finals**, University of Oxford, UK. Title: "Speculative Spacecraft Propulsion Systems".

University Teaching and Mentoring

University of Oxford: Faculty Lecturing

- **Advanced Philosophy of Physics** (MT18, MT19, MT20, HT25).
- **Intermediate Philosophy of Physics: Special Relativity** (HT19, HT20, HT21, HT22, HT24, HT25).
- **Intermediate Philosophy of Physics: Quantum Mechanics** (MT24).
- **The Foundations of General Relativity** (TT18).

University of Oxford: Thesis Supervision

D.Phil. Theses

1. Patrick Dürr (2020).
   Gravitational Energy and Energy Conservation in General Relativity and Other Theories of Gravity.
2. Caspar Jacobs (2021).
   Symmetries as a Guide to the Structure of Physical Quantities.
3. George Webster (2022).
   Difference and Structure: Deleuze and Ontic Structural Realism.
4. Daniel Grimmer (2024).
   Searching for New Spacetimes: Towards a Dynamics-First View of Topology.

5. William Wolf (2025 — expected).
   Underdetermination in Dark Energy and Inflationary Cosmology.

6. Franciszek Cudek (2026 — expected).
   Determinism in General Relativity.

7. Miles Donahue (2028 — expected).
   Title TBD.

B.Phil. Theses

1. Francesco Moiraghi (2020).
   Explanation Through Functionalism.

2. Marta Bielińska (2021).
   Testing Spacetime Orientability.

3. Eleanor March (2025).
   Minimal Coupling, the Strong Equivalence Principle, and the Adaptation of Matter to Spacetime Geometry.

Undergraduate Theses

1. Jack Johnson — M.Phys.Phil. (2019).
   Probability and Coincidence in Time Travel Scenarios.

2. Catherine Ashworth — M.Phys.Phil. (2021).
   Subjective and Objective Probability in Everettian Quantum Mechanics.

3. Django Pinter — B.A. (2021).
   What Does Time Travel Look Like?

4. Bryan Cheng — M.Phys.Phil. (2022).
   Possible Worlds Naturalised: An Empiricist Approach to Modality.

5. Abby O'Gorman — M.Phys.Phil. (2024).
   Gödel's Modal Argument from General Relativity to the Contingency of the Objective Lapse of Time.

6. Gregor Gajic — M.Math.Phys. (2024).
   On the Hole Argument under Nonstandard Approaches to the Foundations of Mathematics.

7. Jamie Wright — M.Phys.Phil. (2025).
   The Importance of Subsystems to the Interpretation of Symmetry.

University of Oxford: Graduate Teaching

- **Philosophy of Physics** for the M.St. in Philosophy of Physics and B.Phil. in Philosophy (MT18, HT19, MT19, HT20, MT20, HT21, HT22, MT23, HT24, TT24, MT24, HT25).
- **Philosophy of Science** for the M.St. in Philosophy of Physics and B.Phil. in Philosophy (HT19, HT20, TT20, MT20, HT21, HT22, TT22, HT24, TT24, HT25, TT25).
- **History of Philosophy from 1800 to 1950** for the B.Phil. in Philosophy (TT21).
- **Early Modern Philosophy** for the B.Phil. in Philosophy (TT23).

University of Oxford: Undergraduate Tutorial Teaching

- **Introduction to Logic**: Lady Margaret Hall (MT15, HT16), Hertford College (MT16, HT17, TT17), Keble College (MT16), Pembroke College (MT18, TT19, MT19, HT20, MT20, TT21, HT22, TT22, MT23, HT24, TT24, MT24, TT25).
- **Elements of Deductive Logic**: Hertford College (HT17, TT17), Oriel College (TT17), Pembroke College (TT18, HT19, TT19, HT20, TT20, TT21, TT22, TT24).
- **Philosophical Topics in Logic and Probability**: Pembroke College (TT25).
- **General Philosophy**: Pembroke College (MT18, HT19, TT19, MT19, HT20, MT20, HT21).
- **The Leibniz-Clarke Correspondence**: Hertford College (TT17), Pembroke College (TT19, TT20, TT21, TT22, TT24, TT25).
- **102 Knowledge and Reality**: Pembroke College (MT18, HT19, TT19, MT19, HT20, TT20, MT20, TT21, TT22, MT22, MT23, HT24, TT24).

- **108 Philosophy of Logic and Language**: Pembroke College (TT19, TT21, HT22, TT22, HT25, TT25).
- **120 Intermediate Philosophy of Physics**: Pembroke College (MT18, HT19, TT19, MT19, HT20, TT20, MT20, HT21, TT21, HT22, TT22, MT23, HT24, TT24, MT24, HT25, TT25).
- **121 Advanced Philosophy of Physics**: Pembroke College (MT20, HT21, HT22, MT23, HT24, TT24, MT24, HT25, TT25).
- **124 Philosophy of Science**: Hertford College (HT17, TT17), Lady Margaret Hall (TT18), Pembroke College (MT18, HT19, TT19, MT19, HT20, TT20, MT20, HT21, TT21, HT22, TT22, MT22, MT23, HT24, TT24, MT24, HT25, TT25).
- **127 Philosophical Logic**: Lady Margaret Hall (HT15, TT15, HT16, TT16, TT17, TT18), Hertford College (TT15), Balliol College (HT16), Oriel College (TT16), Pembroke College (MT18, HT19, TT19, HT20, TT20, TT21, HT22, TT22, HT24, TT24).

King's College London

- **Philosophy of Physics I: Space and Time** (Spring 2017).
- **Philosophy of Physics II: Quantum Mechanics** (Spring 2017).

Other

- **Philosophy of Space and Time**: Biennial Midwest Summer School in Philosophy of Physics, Chicago, USA (Summer 2018, Summer 2020); Extracurricular Class Series, Oxford University Physics Society (TT21).
- **Philosophy of Quantum Mechanics**: Extracurricular Class Series, Oxford University Physics Society (MT20).
- **Philosophy of Science**: D.Phil. course, Weatherall Institute for Molecular Medicine, University of Oxford (MT21, MT22, MT23, MT24).
- **The Dawn of Modern Philosophy**: OxNet Humanities seminar series (HT20, HT22, HT23, HT24, HT25).
- **The Philosophy of Artificial Intelligence**: OxNet Science seminar series (HT20).

Service

- Honorary Treasurer, British Society for the Philosophy of Science, 2020–24.
- Founding member of Philosophy of Physics Society and journal *Philosophy of Physics*.
- Associate editor for *Foundations of Physics*.
- Reviewer for journals: *Analysis*, *Australasian Journal of Philosophy*, *British Journal for the Philosophy of Science*, *Classical and Quantum Gravity*, *Dialectica*, *Discover Applied Sciences*, *Discover Space*, *Entropy*, *Ergo*, *European Journal for Philosophy of Science*, *European Journal of Physics*, *Foundations of Physics*, *Foundations of Science*, *International Journal of Theoretical Physics*, *International Studies in Philosophy of Science*, *Journal for General Philosophy of Science*, *Journal of Mathematical Physics*, *Journal of Philosophical Logic*, *Journal of Philosophy*, *Mathematical Reviews*, *Mind*, *Modern Physics Letters A*, *Noûs*, *Pacific Philosophical Quarterly*, *Philosophers' Imprint*, *Philosophical Quarterly*, *Philosophical Studies*, *Philosophies*, *Philosophy of Physics*, *Philosophy of Science*, *Physica Scripta*, *Proceedings of the Royal Society A*, *Scientific Reports*, *Studies in History and Philosophy of Modern Physics*, *Studies in History and Philosophy of Science*, *Synthese*, *Theoria*.
- Reviewer for edited volumes:
  - N. Huggett, B. Le Bihan and C. Wüthrich (eds.), *Philosophy Beyond Spacetime: Implications from Quantum Gravity*, Oxford: Oxford University Press, 2021.
  - N. Huggett, K. Matsubara and C. Wüthrich (eds.), *Beyond Spacetime: The Foundations of Quantum Gravity*, Cambridge: Cambridge University Press, 2020.
  - C. Beisbart, T. Sauer and C. Wüthrich (eds.), *Thinking About Space and Time: 100 Years of Applying and Interpreting General Relativity*, Einstein Studies series, vol. 15, Basel: Birkhäuser, 2020.
- Reviewer for book publishers: Cambridge University Press, Oxford University Press, Routledge.
- Reviewer for grant-awarding bodies: Arts and Humanities Research Council; British Academy; Dutch Research Council; French Philosophy of Science So-

ciety; German Research Foundation (DFG); John Templeton Foundation; Leverhulme Trust; Netherlands Institute for Advanced Study; Open University of Israel; Swiss National Science Foundation; University of Chinese Academy of Sciences.

- Program committee: *British Society for the Philosophy of Science* (Durham University, 2019); *Alternative Approaches to Scientific Realism* (LMU Munich, 2021); *British Society for the Philosophy of Science* (online, 2021); *British Society for the Philosophy of Science* (Exeter University, 2022); *British Society for the Philosophy of Science* (Bristol University, 2023); *Foundations of Physics* (Bristol University, 2023); *Society for the Metaphysics of Science* (Nova Scotia, 2023); *Seventh Spacetime Conference of the Minkowski Institute* (Varna, Bulgaria, 2024); *British Society for the Philosophy of Science* (York University, 2024); *Society for the Metaphysics of Science* (Lugano, 2025); *British Society for the Philosophy of Science* (Glasgow University, 2025).

- Event co-organiser: *First Oxford-Notre Dame-Bonn Workshop in the Foundations of Spacetime Theories* (2019); *British Society for the Philosophy of Science* (2021); *Oxford Easter 2022 Spacetime Workshop* (2022); *Oxford-Notre Dame Covariant Phase Space Workshop* (2022); *Geneva-Oxford-Notre Dame Equivalence Principle Workshop* (2024); *Third Oxford Spinoza Conference* (2025).

- Undergraduate admissions interviewer, University of Oxford: Hertford College (MT16), Lady Margaret Hall (MT16), Pembroke College (MT18, MT19, MT20, MT23, MT24).

- Convenor of seminar series: Philosophy of Physics Seminar, University of Oxford (HT19, TT19, MT20, MT21, TT23, HT25, TT25); Pembroke College Philosophy Society, University of Oxford (MT18, HT19, MT19, HT20, MT20, HT21, TT21, HT22, MT23, HT24); Pembroke 3CR Reading Group (TT24, MT24, HT25, TT25); Pembroke 3CR Pre-dinner Talks (TT24, MT24, HT25, TT25); Philosophy of Physics Graduate Seminar, University of Oxford (MT16, HT17, TT17).

- Undergraduate/masters examining:

  – Faculty of Philosophy, University of Oxford (2019–, for Prelims, Finals, and M.St. in Philosophy of Physics; Chair of both Prelims and M.St. examining multiple times)

  - Imperial College, London (external for Imperial Horizons programme, 2021–25).

- Doctoral examining:

  1. Joshua Babic, *Equivalence and Relationism*, University of Geneva, 2023. (External examiner.)
  2. Justin P. Holder, *Conventionalism and Structuralism in Madhyamaka and Science*, University of Oxford, 2024. (Internal examiner.)
  3. Floris Eskens, *On Quasi-dualities*, Australian Catholic University, 2024. (External examiner for Confirmation of Candidature.)
  4. Christian Airikka, *T-Duality and Realiser Spacetime Functionalism*, Oslo University, 2025. (External examiner for Midway Examination.)
  5. Mariona Miyata-Sturm, *Effortless Elegance: A Metacognitive Account of Aesthetics in Science*, University of Oxford, 2025. (Internal examiner.)

- Member of Governing Body, Pembroke College, University of Oxford.

- Member of Finance and Planning Committee and Governance Committee (and former member of Academic Committee), Pembroke College, University of Oxford.

- Secretary of the Senior Common Room, Pembroke College, University of Oxford. (2024–)

- Placement Officer, Faculty of Philosophy, University of Oxford (2024–) and M.St. Philosophy of Physics course coordinator (several times 2020–).

Other Information

- Languages: Spanish, Nepali.

- Miscellaneous: Cycling, running, hiking, painting, photography.