Curriculum Vitæ
Hans Halvorson

Department of Philosophy
Princeton University
Princeton, NJ 08544
hanshalvorson.com

Permanent positions

2016–	Stuart Professor of Philosophy
2012–	associated faculty, mathematics
2010–	full professor
2005–10	associate professor
2001–05	assistant professor, Princeton University

Secondary affiliations

2021–	research professor, University of Copenhagen
2008–09	visiting researcher, Mathematical Institute, Utrecht
2005–06	fellow, Perimeter Institute for Theoretical Physics
2002–	fellow, Pittsburgh Center for the Philosophy of Science

Education

2001	PhD philosophy, University of Pittsburgh
1999	visiting student researcher, Oxford University
1998	MA mathematics, Pittsburgh
1997	MA philosophy, Pittsburgh
1995	BA philosophy, with honors, Calvin College

Work in progress

HH. Invariance and ontology in relativistic physics philpapers:HALTIN-3

HH. Momentum and context philpapers:HALMAC-2

HH. Quantifier variance without collapse philpapers:HALQVW

HH. Mind independence and invariance

Publications

[69] S. De Haro and HH, "Scientific theories", in *Comprehensive philosophy of science*, edited by S. O. Hansson, Forthcoming (Elsevier, 2026).

[68] HH, "Bohr's epistemological lesson of quantum physics", in *How to understand quantum mechanics: 100 years of ongoing interpretations*, edited by J. Faye and L.-G. Johansson (Springer, 2026).

[67] HH, "Niels Bohr: physicist-philosopher in action", in *La philosophie des physiciens, XXe-XXIe siècles*, edited by F. Laguens (2026).

[66]HH, "The point of departure: Bohr's 'the unity of human knowledge (1960)'", in *Can we understand the world?*, edited by J. Hafner (Ergon Verlag, 2026).

[65]HH, J. Manchak, and J. O. Weatherall, "Deterministic theories", Philosophy and Phenomenological Research (2026) 10.1111/phpr.70122.

[64]HH, "Fundamental physics and middle sized dry goods", Scientia et Fides (2025) 10.12775/SetF.2025.015.

[63]HH, "Rasmus Nielsen", in *Grundriss der geschichte der philosophie*, edited by G. Hartung (Schwabe Verlag, Basel, 2025).

[62]HH and J. Manchak, "Closing the hole argument", British Journal for the Philosophy of Science **76**, 295–318 (2025) 10.1086/719193.

[61]J. Manchak, T. W. Barrett, HH, and J. O. Weatherall, "Determinism and asymmetry in general relativity", British Journal for the Philosophy of Science (2025).

[60]HH, "Review: on theories: logical empiricism and the methodology of modern physics", Mind **133**, 1161–1172 (2024) 10.1093/mind/fzac065.

[59]HH, "Carnap's formal philosophy of science", in *Rudolf Carnap Handbuch*, edited by C. Damböck and G. Schiemer (Metzler Verlag, 2023).

[58]HH, "The philosophy of science in Either-Or", in *Kierkegaard's Either-Or*, edited by R. Kemp and W. Wietzke (Cambridge University Press, 2023), pp. 153–170, 10.1017/9781009067713.010.

[57]HH, "What philosophy of science has to offer to theology", Philosophy, Theology, and the Sciences **10**, 96–104 (2023) 10.1628/ptsc-2023-0009.

[56]HH and J. Butterfield, "John Bell on 'subject and object': an exchange", Journal for General Philosophy of Science **54**, 305–324 (2023) 10.1007/s10838-021-09594-y.

[55]HH and A. S. Jacobsen, "Niels Bohr og den danske filosofiske tradition", in *Vitenskap, menneskerettigheter og diplomati: Fridtjof Nansen og Niels Bohr*, edited by J. L. og Helle Porsdam (Novus Forlag, Oslo, 2023), pp. 245–264.

[54]T. Barrett and HH, "Mutual translatability, equivalence, and the structure of theories", Synthese **200**, 240 (2022) 10.1007/s11229-022-03733-8.

[53]HH, "Objective description in physics", in *Proceedings of the 16th international congress of logic, methodology and philosophy of science and technology*, edited by T. Marvan, H. Andersen, B. Löwe, and H. Chang (College Publications, 2022), pp. 111–132.

[52]HH, "Review: there are no such things as theories", Journal for General Philosophy of Science **52**, 609–612 (2021) 10.1007/s10838-021-09573-3.

[51]HH and H. Kragh, "Cosmology and theology", Stanford Encyclopedia of Philosophy (2021).

[50]HH, "Concluding unscientific image", Metascience **29**, 175–185 (2020) 10.1007/s11016-020-00506-2.

[49]HH, *How logic works: a user's guide* (Princeton University Press, 2020), 10.1515/9780691208718.

[48]HH, *The logic in philosophy of science* (Cambridge University Press, 2019), 10.1017/9781316275603.

[47]HH, "To be a realist about quantum theory", in *Quantum worlds: perspectives on the ontology*

of quantum mechanics, edited by O. Lombardi (Cambridge University Press, 2019), pp. 133–163, 10.1017/9781108562218.010.

[46] A. Briggs, HH, and A. Steane, *It keeps me seeking: the invitation from science, philosophy, and religion* (Oxford University Press, USA, 2018), 10.1093/oso/9780198808282.001.0001.

[45] HH, "A theological critique of the fine-tuning argument", in *Knowledge, belief, and God: new insights in religious epistemology*, edited by M. A. Benton, J. Hawthorne, and D. Rabinowitz (Oxford University Press, 2018), pp. 122–135, 10.1093/oso/9780198798705.003.0007.

[44] HH and D. Tsementzis, "Categories of scientific theories", in *Categories for the working philosopher*, edited by E. Landry (Oxford University Press, 2018), pp. 402–429, 10.1093/oso/9780198748991.003.0017.

[43] M. Ozawa, J. Butterfield, H. Halvorson, M. Rédei, Y. Kitajima, and F. Buscemi, eds., *Reality and measurement in algebraic quantum theory* (Springer, 2018), 10.1007/978-981-13-2487-1.

[42] D. Tsementzis and HH, "Foundations and philosophy", Philosophers Imprint **18** (2018).

[41] T. Barrett and HH, "From geometry to conceptual relativity", Erkenntnis **82**, 1043–1063 (2017) 10.1007/s10670-016-9858-y.

[40] T. Barrett and HH, "Quine's conjecture on many-sorted logic", Synthese **194**, 3563–3582 (2017) 10.1007/s11229-016-1107-z.

[39] T. Barrett and HH, "Glymour and Quine on theoretical equivalence", Journal of Philosophical Logic **45**, 467–483 (2016) 10.1007/s10992-015-9382-6.

[38] T. Barrett and HH, "Morita equivalence", Review of Symbolic Logic **9**, 556–582 (2016) 10.1017/S1755020316000186.

[37] HH, "Scientific theories", in *The Oxford handbook of philosophy of science*, edited by P. Humphreys (Oxford University Press, 2016), pp. 585–608, 10.1093/oxfordhb/9780199368815.013.33.

[36] HH, "Why methodological naturalism?", in *The Blackwell companion to naturalism*, edited by K. J. Clark (Blackwell, 2016), pp. 136–149, 10.1002/9781118657775.ch10.

[35] D. Baker, HH, and N. Swanson, "The conventionality of parastatistics", British Journal for the Philosophy of Science **66**, 929–976 (2015) 10.1093/bjps/axu018.

[34] D. Baker and HH, "How is spontaneous symmetry breaking possible? understanding Wigner's theorem in light of unitary inequivalence", Studies in History and Philosophy of Modern Physics **44**, 464–469 (2013) 10.1016/j.shpsb.2013.09.005.

[33] HH, "Plantinga on providence and physics", European Journal for Philosophy of Religion **5**, 19–30 (2013) 10.24204/ejpr.v5i3.216.

[32] HH, "Review: platonism, naturalism, and mathematical knowledge", Notre Dame Philosophical Reviews (2013).

[31] HH, "Ruetsche on the pristine and adulterated in quantum field theory", Metascience **22**, 69–75 (2013) 10.1007/s11016-012-9702-1.

[30] HH, "The semantic view, if plausible, is syntactic", Philosophy of science **80**, 475–478 (2013) 10.1086/671077.

[29] HH, "What scientific theories could not be", Philosophy of Science **79**, 183–206 (2012)

10.1086/664745.

[28] HH and H. Kragh, "Physical cosmology", in *The Routledge companion to Theism* (Routledge, 2012), pp. 241–255, 10.4324/9780203123294.

[27] H. Halvorson, ed., *Deep beauty: understanding the quantum world through mathematical innovation* (Cambrdige University Press, 2011), 10.1017/CBO9780511976971.

[26] HH, "The measure of all things: quantum mechanics and the soul", in *The soul hypothesis: investigations into the existence of the soul*, edited by M. C. Baker and S. Goetz (Continuum Press, 2011), pp. 138–163.

[25] D. Baker and HH, "Antimatter", British Journal for the Philosophy of Science **61**, 93–121 (2010) 10.1093/bjps/axp009.

[24] HH, "Locality", in *The philosophy of science: an encyclopedia*, edited by J. Pfeifer and S. Sarkar (Routledge, 2006).

[23] HH, "Quantum mechanics", in *The philosophy of science: an encyclopedia*, edited by J. Pfeifer and S. Sarkar (Routledge, 2006).

[22] HH and M. Müger, "Algebraic quantum field theory", in *Handbook of the philosophy of physics*, edited by J. Butterfield and J. Earman (Kluwer Academic Publishers, 2006), pp. 731–864, 10.1016/b978-044451560-5/50011-7.

[21] J. Bub and HH, "Can quantum cryptography imply quantum mechanics?", Quantum Information and Computation **5**, 170–175 (2005) 10.26421/QIC5.2-8.

[20] J. Butterfield and HH, eds., *Quantum entanglements: selected papers of Rob Clifton* (Clarendon Press, 2004), 10.1093/oso/9780199270156.001.0001.

[19] HH, "Complementarity of representations in quantum mechanics", Studies in History and Philosophy of Modern Physics **35**, 45–56 (2004) 10.1016/j.shpsb.2003.01.001.

[18] HH, "On information-theoretic characterizations of physical theories", Studies in History and Philosophy of Modern Physics **35**, 277–293 (2004) 10.1016/j.shpsb.2004.02.001.

[17] HH, "Remote preparation of arbitrary ensembles and quantum bit commitment", Journal of Mathematical Physics **45**, 4920–4931 (2004) 10.1063/1.1812827.

[16] R. Clifton, J. Bub, and HH, "Characterizing quantum theory in terms of information-theoretic constraints", Foundations of Physics **33**, 1561–1591 (2002) 10.1023/a:1026056716397.

[15] HH, "Review: on quanta, mind, and matter", Studies in the History and Philosophy of Modern Physics **33**, 744–747 (2002) 10.1016/S1355-2198(02)00042-4.

[14] HH and R. Clifton, "No place for particles in relativistic quantum theories?", Philosophy of Science **69**, 1–28 (2002) 10.1086/338939.

[13] HH and R. Clifton, "Reconsidering Bohr's reply to EPR", in *Non-locality and modality*, edited by T. Placek and J. Butterfield (Kluwer, 2002), pp. 3–18, 10.1007/978-94-010-0385-8_1.

[12] R. Clifton and HH, "Are Rindler quanta real? inequivalent particle concepts in quantum field theory", British Journal for the Philosophy of Science **52**, 417–470 (2001) 10.1093/bjps/52.3.417.

[11] R. Clifton and HH, "Entanglement and open systems in algebraic quantum field theory", Studies in History and Philosophy of Modern Physics **32**, 1–31 (2001)

10.1016/s1355-2198(00)00033-2.

[10] HH, "Locality, localization, and the particle concept: topics in the foundations of quantum field theory", PhD thesis (University of Pittsburgh, 2001).

[9] HH, "On the nature of continuous physical quantities in classical and quantum mechanics", Journal of Philosophical Logic **30**, 27–50 (2001) 10.1023/a:1017574203443.

[8] HH, "Reeh-Schlieder defeats Newton-Wigner: on alternative localization schemes in relativistic quantum field theory", Philosophy of Science **68**, 111–133 (2001) 10.1086/392869.

[7] HH, "Review: P. Vermaas, a philosopher's understanding of quantum mechanics: possibilities and impossibilities of a modal interpretation", The British Journal for the Philosophy of Science **52**, 387–391 (2001) 10.1093/bjps/52.2.387.

[6] R. Clifton, HH, and A. Kent, "Nonlocal correlations are generic in infinite-dimensional bipartite systems", Physical Review A **61** (2000) 10.1103/PhysRevA.61.042101.

[5] HH, "The Einstein-Podolsky-Rosen state maximally violates Bell's inequalities", Letters in Mathematical Physics **53**, 321–329 (2000) 10.1023/A:1007609031556.

[4] HH and R. Clifton, "Generic Bell correlation between arbitrary local algebras in quantum field theory", Journal of Mathematical Physics **41**, 1711–1717 (2000) 10.1063/1.533253.

[3] R. Clifton and HH, "Bipartite-mixed-states of infinite-dimensional systems are generically nonseparable", Physical Review A **61**, 012108 (1999) 10.1103/PhysRevA.61.012108.

[2] HH and R. Clifton, "Maximal beable subalgebras of quantum mechanical observables", International Journal of Theoretical Physics **38**, 2441–2484 (1999) 10.1023/A:1026628407645.

[1] R. Clifton, D. Feldman, HH, M. Redhead, and A. Wilce, "Superentangled states", Physical Review A **58**, 135–145 (1998) 10.1103/PhysRevA.58.135.

Unpublished papers and notes

HH and T Barrett. "How to count structure"

S Wolters and HH. "Independence conditions for nets of local algebras as sheaf conditions" arxiv:1309.5639

HH and N Swanson. "Comment on the structure of physics" philsci-archive/9314

HH. "Does quantum theory kill time?" philpapers:HALDQT

Articles for broader audiences

"Niels Bohr forvansket" Weekendavisen, Jun 2020

"Can science speak about the past" Biologos, Dec 2017

"Fine-tuning does not imply a fine tuner" Nautilus, Jan 2017

"Matter" Edge Question 2017

"Einstein was wrong" Edge Question 2016

"What does quantum mechanics suggest about our perceptions of reality?" Big Questions Online 2015

"When is belief in miracles rational?" Slate 2015

"Meta-thinking" Edge Question 2015

"Quantum envy" (with Adam Neder) Lutheran Forum 2007

"Comments on Clouser's claims for theistic science" PSCF 2006

Invited lectures and conference presentations

2026 "Er musste das Wissen aufheben: van Fraassen on the priority of the manifest image" Schock Prize conference. June 2026

TBA. Conference on theoretical equivalence. Oslo, June 2026

"Updating your religion" Princeton alumni lecture. Princeton, May 2026

2025 "Niels Bohr on causal explanation" 5th International Conference on the History of Quantum Physics, August 2025

"Theory acceptance is not (yet) belief". The epistemological significance of Kierkegaard's Climacus works. University of Southampton, May 2025

"Niels Bohr's philosophy of applied mathematics" Videnskabshistorisk Selskab. Copenhagen, Apr 2025.

TBA. Workshop: The Logic in Science. Venice, Apr 2025.

"Equivalence – state of play" Workshop: Università della Svizzera italiana

"Reduction redux" Department Colloquium: Università della Svizzera italiana

"When is a theory deterministic?" Radboud Center for Natural Philosophy. Nijmegen, Jan 2025

2024 "On the unity of science" Forum Religionen im Kontext. Potsdam, Dec 2024

"Mathematics is just more language" Meaning and Equivalence of Formal Theories. Vienna, Dec 2024

Philosophy of physics across methodological boundaries roudtable. World Congress of Philosophy. Rome, Aug 2024

"Equivalence in foundations" ASL Logic Colloquium. Göteborg, June 2024

"Niels Bohr on the knowing subject" BOHR21 Workshop. Copenhagen, June 2024

"The roots of Niels Bohr's thought" Workshop on Literature, Philosophy, and Science (Transformative Transmissions: German-Scandinavian Intellectual Communities 1790–1860). Copenhagen, June 2024

2023 "Was Rasmus Nielsen a windbag (as Kierkegaard claimed)?" Søren Kierkegaard Research Center. Copenhagen, Nov 2023

"What do models say?" UC Irvine, Oct 2023

"Contextualism in relativity and quantum theories" University of Stockholm, Oct 2023

"Considerations from physics and theology". Fine Tuning Workshop. Rutgers, July 2023

"Speaking about models" University of Konstanz, June 2023

"Niels Bohr's values" University of Copenhagen, June 2023

"Dispensing with the hole argument" *Mathematics in Physics*. Oslo, June 2023

"Invariance and mind-independence" Theoretical Philosophy Seminar. University of Uppsala, May 2023

"The goal of formal analysis" *The Formal Turn in Twentieth Century Thought*. Vienna, Feb 2023

"The concept of a frame of reference" *Physics meets Philosophy*. Vienna, Feb 2023

"Spor efter Kierkegaard i den moderne fysik" Søren Kierkegaard Selskabet. Jan 2023

2022 "Niels Bohrs og den danske filosofiske tradition", Symposium: Niels Bohr: Scientist, Philosopher, and Diplomat. Danish Academy for Science and Letters. Sep 2022

"Translations between translations", Tarskian Algebraic Logic, Relativity Theory and Methodology of Science – István Németi is 80. Alfréd Rényi Institute of Mathematics. Sep 2022

"Critical or dogmatic interpretation of quantum mechanics?", Grete Hermann and Friends. Utrecht. July 2022

"Mind independence". Cambridge-Copenhagen Symposium on *Realism for Realistic People* by Hasok Chang. June 2022

Three lectures on *The Logic in Philosophy of Science*: Winter school, University of Geneva. Mar 2022

2020 Author meets critics, *The Logic in Philosophy of Science*. Central APA, Chicago, Feb 2020

Three lectures: Matematesering af Fysik, for Videnskabsteori course, University of Copenhagen. Feb 2020, 2021

2019 "Physics and the absolute conception" University of Illinois, Sep 2019

"Objective description in physics" The International Congress of Logic, Methodology and Philosophy of Science and Technology. Prague. July 2019

Comments on T. Button and S. Walsh, *Philosophy and Model Theory*. Pacific APA, April 2019

2018 "2-categories of theories" Conference on Category Theory in Philosophy of Science. LMU Munich, July 2018

"Semantics and the god's eye view." Conference on Semantics of Science. University of Salzburg, June 2018

"Wissenschaftslogik erneuert" LMU Munich, June 2018

2017 "The wave-function in itself" Conference: Identity, indistinguishability and non-locality in quantum physics. Buenos Aires. Jun 2017

"The invariant content of equivalent theories" CSLI Workshop on Logic, Rationality, and Intelligent Interaction. Stanford University. Jun 2017

"Probability ex nihilo" Rutgers Probability Seminar. Feb 2017

2016 "The invariant content of equivalent theories" Semantics of Scientific Theories Conference, LMU Munich. Jun 2016

"Probability and fine-tuning" Multiverse and Theodicy Conference, Rutgers. June 2016

"From geometry to conceptual relativity" (with T. Barrett) Society for Exact Philosophy Conference, Miami. May 2016

2015 "The categorical approach to scientific theories." Notre Dame, Oct 2015

"Glymour and Quine on theoretical equivalence" (with T. Barrett) Logic, Relativity and Beyond Conference, Budapest. Aug 2015

"Divine and human agency in a quantum world" Science and Personal Action Conference, MIT. July 2015

"What's wrong with the fine-tuning argument?" New Insights and Directions in Religious Epistemology Conference, Oxford University. Jun 2015

"The invariant structure of equivalent theories" Rutgers University Philosophy Colloquium. Apr 2015

"Reality and equivalence in algebraic quantum theory" Nagoya Winter Workshop 2015: Reality and Measurement in Algebraic Quantum Theory. University of Nagoya, Japan. Mar 2015

2014 "Univalent foundations: structuralist foundations?" (with D. Tsementzis). Association of Symbolic Logic Meeting. Philadelphia, Dec 2014

"Categories of scientific theories." Philosophy of Science Association Meeting. Chicago, Nov 2014

"Equivalent theories and invariant content." University of Southern California Philosophy Colloquium. Oct 2014

"Explanation via surplus structure" Sigma Club, London School of Economics. Mar 2014

"Does the universe need God?" Ian Ramsey Centre Lecture Series. Oxford University. Mar 2014

"Does the universe need God?" Faraday Institute Lecture Series. Cambridge University. Jan 2014

2013 "Quantum theory of infinite systems: from fields to information" (three lecture series). Instituto de Física Fundamental. Madrid, Nov 2013

HH and J. Weatherall, "What is a scientific theory?" (two lecture series) Carnegie Mellon University. Sep 2013

"The conventionality of parastatistics" (with D. Baker and N. Swanson) Foundations of Physics, Munich. Jul 2013

"The invariant structure of equivalent theories" keynote lecture at LMP graduate conference, University of Western Ontario. May 2013

"Structuralist foundations for abstract mathematics" (with D. Tsementzis) Category-theoretic foundations of mathematics workshop, UC Irvine. May 2013

"The relativity of wrong, redux" Philosophy, Science and Religion Forum. CUNY, Laguardia Community College. May 2013

"What does physics have to do with theology anyway?" The Walton Lecture in Science, Philosophy, and Religion. Fordham University, Apr 2013

"Locality conditions as universal properties" (with S. Wolters) Conference on Relativistic Causality. University of Pittsburgh, Apr 2013

2012 "What is a scientific theory?" Philosophy of Science Association Meeting. San Diego, Nov 2012

"Ruetsche on the pristine and adulterated in quantum field theory" Rotman Institute for Philosophy, University of Western Ontario. Sep 2012

"Ontological naturalism and the interpretation of quantum mechanics" PhysPhil Conference. St. Andrews University, Scotland. Sep 2012

"Philosophy of mind meets quantum mechanics" Summer School in Philosophy of Religion, University of St. Thomas, Minneapolis. Jun 2012

"Divine action in a quantum world?" *Faith, philosophy of science, and science.* Calvin College. Apr 2012

2011 "What scientific theories could not be" University of Washington, Seattle. Nov 2011

"Does physical cosmology confirm theistic belief?" McIntyre Lecture on the Foundations of Physics. Wheaton College, Illinois. Nov 2011

"Foundations for categories, by categories" *Foundational Questions in the Mathematical Sciences.* Traunkirchen, Austria. July 2011

"Natural structure on state space" UC Irvine, Philosophy of Physics Workshop. Apr 2011

"What scientific theories could not be" UC Irvine, LPS Colloquium. Feb 2011

2010 "Ontological naturalism and the interpretation of quantum mechanics" Philosophy Colloquium, Beijing University. Jun 2010

2009 "Recent results on duality for the category of first-order theories" Mathematical Logic Seminar, University of Nijmegen. Feb 2009

"Notions of monoidal category" Operads Seminar, University of Utrecht. Jan 2009

2007 "Antimatter and the metaphysics of opposites" University of Texas at Austin, Nov 2007

2006 "Representing non-local boxes with C^*-algebras" Perimeter Institute for Theoretical Physics. May 2006

"On the conventionality of the claim, 'There are para-particles' " Minnesota Center for the Philosophy of Science. Apr 2006

"Otherworldly information theory" Boston Colloquium for Philosophy of Science. Mar 2006

"Deriving quantum mechanics from information-theoretic axioms" Conference in honor of John Wheeler, Princeton. Feb 2006

2005 "No reductive physicalism, no measurement problem" *New Directions in the Foundations of Physics.* College Park, Maryland. Apr 2005

"No reductive physicalism, no measurement problem" University of Southern California. Jan 2005

2004 "No reductive physicalism, no measurement problem" University of Notre Dame. Sep 2004

"Algebraic quantum field theory" Center for Philosophy of Science, University of Pittsburgh. Oct 2004

"A generalized no-bit-commitment theorem for quantum systems" *C^*-algebras and quantum information theory*. UC Santa Barbara. Jun 2004

"Information-theoretic axioms for quantum mechanics" *Contemporary issues in philosophy of physics*. University of Western Ontario. May 2004

2003 "Can quantum cryptography imply quantum mechanics?" University of Maryland. Nov 2003

"Can the quantum eraser undo the past?" Faculty Seminar on the Concept of Time, Princeton Council of the Humanities. Nov 2003

"Characterizing quantum theory in terms of information-theoretic constraints" Philosophy of Physics Workship, Oxford University. Mar 2003

2002 "Bohr versus Bohm on ontological pluralism" Philosophy of Science Association Meeting, Milwaukee. Nov 2002

"Complementarity in quantum field theory" Boston Colloquium for Philosophy of Science. Oct 2002

"Objective indeterminacy: A prolegomenon to Niels Bohr's philosophy of quantum theory" Princeton Philosophical Society. May 2002

"Non-existent quantities in quantum mechanics" *New directions in the foundations of physics*. College Park, Maryland. May 2002

"Complementarity of representations in quantum mechanics" *Philosophy of mathematics in application*. UC Irvine. Mar 2002

2001 "Reconsidering Bohr's reply to Einstein-Podolsky-Rosen" *Modality, probability, and Bell's theorem*. Jagiellonian University, Poland. Aug 2001.

"Complementarity of representations in quantum mechanics" International Quantum Structures Association Meeting. Cesena, Italy. Mar 2001

"The 'substance' of complementarity: Niels Bohr, quantum field theory, and particle metaphysics" Princeton University, Feb 2001; University of Notre Dame, Jan 2001; University of Michigan, Jan 2001

2000 "Does relativity imply nonlocality? Unpacking the Reeh-Schlieder theorem" UC Irvine, May 2000

1999 "Generic Nonlocality in Theories of Everything" (with R. Clifton). London School of Economics. Nov 1999

"Bell correlations in the vacuum: on a conjecture of David Malament" (with R Clifton). Oxford University. Nov 1999

Outreach activities

- "Niels Bohr's great idea" BLOOM festival of science and ideas, Copenhagen. May 2022
- "Entydig Videnskab: Niels Bohrs Aktualitet i Fysik og Filosofi" University of Copenhagen 542nd Anniversary Lecture. Nov 2021

- "Reason, science, and mystery," and "Learning theology in a new landscape." Festival of Learning, Svenska Kyrkan. 2017
- Panelist at "The physics of everything," New York Academy of Sciences, Apr 2016
- Academic–Athletic Fellow, Princeton University Rowing. 2011–
- Panelist at "Liberal arts education, religious life, and the Jewish tradition" Jewish Learning Initiative on Campus Princeton, 2014
- Veritas forums at Brown, CalTech, NYU, Washington U, Rider, Columbia. 2014–17
- The Ratio Project paper development workshop for philosophers in Belarus, Russia, and the Ukraine. Moscow, July 2014
- Philosophy of religion summer seminar, University of Beijing, 2010

Prizes, grants, and fellowships

- Princeton Council of Humanities Grant for "The Modern Breakthrough in Scandinavia: Philosophy, Science, Art" (co-PI Bridget Alsdorf) 2024–26. $75k
- JTF Research Grant "Space from entanglement" 2024–26. $225k
- Princeton Tuck Grant for International Research Collaboration 2018–19 (Denmark)
- Princeton Center for the Study of Religion grant for developing a course "Religion and scientific objectivity" 2017
- TWCF Research Grant (co-PI Andrew Briggs) "Experimental tests of quantum reality" 2013–2016. $2.6M
- NSF Research Grant (co-PI David J. Baker) "Identical particles and statistics in superselection theory." 2011–12. $100k
- Princeton Tuck Grant for International Research Collaboration 2010–11 (Netherlands)
- Mellon New Directions in the Humanities Fellowship, 2008–09. $250K
- JTF Research Grant: "Understanding the quantum world through mathematical innovation." 2007
- Behrman Fellow, Princeton Council of the Humanities, 2005–08
- Princeton 250th Anniversary Fund for Innovation in Undergraduate Education, grant for developing logic curriculum, 2004
- James Cushing Memorial Prize in the History and Philosophy of Physics, 2004
- "Ten best articles in philosophy for the year 2002" *The Philosopher's Annual*
- "Best article by a recent PhD for the year 2001" Philosophy of Science Association
- "Ten best articles in philosophy for the year 2001" *The Philosopher's Annual*
- Alan Ross Anderson Fellowship for Philosophical Logic, Pittsburgh, 1997
- Pew Younger Scholars Graduate Fellow, 1995–98

Teaching and advising

Post-graduate mentoring: I worked with and wrote letters for the following PhD students and postdocs. An asterisk indicates that I was the primary advisor. Unless indicated otherwise, placement in a tenure track position at the listed university.

- Jake Khawaja*
- Brendan Kolb*
- Alexander Meehan*: postdoc Yale, University of Wisconsin at Madison
- David Schroeren*: postdoc Geneva
- Daniel Berntson: postdoc Rutgers, postdoc Uppsala
- Robbie Hirsch*: postdoc Princeton
- Thomas Barrett*: postdoc NYU, UC Santa Barbara
- Dimitris Tsementzis*: postdoc Rutgers, Goldman Sachs machine learning quants
- Laurenz Hudetz (Salzburg): London School of Economics
- Neil Dewar (Oxford): postdoc Munich, Cambridge University
- Michaela McSweeney: Boston University
- Benjamin Feintzeig (UC Irvine): University of Washington
- Noel Swanson*: University of Delaware
- Samuel Fletcher (UC Irvine): University of Minnesota
- Nicholas Teh (Cambridge): University of Notre Dame
- Joseph Rachiele*: Chapman University
- Joshua Hershey: The King's College NY
- Jo E. Wolff (Stanford): University of Edinburgh
- Jim Weatherall (UC Irvine): UC Irvine
- Caleb Cohoe: Metropolitan State University, Denver
- Jada Strabbing: Fordham University, Wayne State University
- Giovanni Valente (Maryland): University of Pittsburgh, Politecnico Milano
- Yuichiro Kitajima (Hokkaido): Nihon University
- David J. Baker*: University of Michigan
- Lara Buchak: UC Berkeley, Princeton
- Tracy Lupher (Texas): James Madison University
- Antony Eagle: Oxford University, University of Adelaide

Graduate seminars

- Spacetime and objectivity
- Kierkegaard's *Concluding Unscientific Postscript*
- Philosophy of space and time (with D. Hogan)
- Logical philosophy of science
- Foundations of mathematics: set theory vs. category theory (with J. Burgess)
- Categorical logic and topos theory
- Quantum information theory and the foundations of quantum mechanics (with B. van Fraassen)
- Metaphysics of physics (with J. Butterfield)
- Foundations of quantum field theory
- Scientific realism and antirealism
- From physics to metaphysics (with A. Elga)

Students in Princeton's PhD program earn "units of credit" by writing papers under the supervision of some member of the faculty. I have advised unit work on a number of topics including general philosophy of science, philosophy of physics, philosophy of religion, and philosophical logic.

Senior theses advised: Since 2001, advised between one and five theses per year — for Philosophy, Math, Physics, and ORFE. Besides my areas of expertise, I have also advised theses in pragmatism, metaphysics, philosophy of mind, religion, biology, and medicine.

Undergraduate courses and seminars

- Religion and Scientific Objectivity
- Kierkegaard
- Philosophy of Science
- History of Analytic Philosophy 1900–1950
- Philosophy of Mathematics
- Category Theory (math-phil)
- Advanced Logic (math-phil)
- Intermediate Logic
- Philosophical Logic
- Philosophy of Physics
- Philosophy of Religion
- Introductory Logic
- History of Modern Philosophy
- The Modern Breakthrough in Scandinavia

Administrative experience

- Director of Graduate Studies, Philosophy Department, 2007–08
- Princeton University Research Board, 2007–08, 2009-11, 2016–17

Service to the university and the profession

Princeton Committee on Undergraduate Admission and Financial Aid, 2024–27
Princeton Policy Committee on Athletics and Campus Recreation, 2022–25
Associate editor:

- *Philosophy of Physics* 2022–
- *Review of Symbolic Logic* 2020–
- *Science, Religion and Culture* 2017–
- PhilPapers.org Philosophy of Physical Science 2011–

Scientific Advisory Board of ERC ADV project "Team semantics and dependence" (PI: Jouko Väänänen) 2021–24
Program committee:

- Philosophy of Science Association Meeting 2006
- The semantics of scientific theories 2016. LMU Munich
- European Philosophy of Science Association Meeting 2023
- Foundations of Physics 2026

Co-organizer:

- Oxford-Princeton partnership in Philosophy of Physics 2001–2007
- Foundations of Quantum Theory Conference. Nagoya, Japan. March 2015
- Irvine-Pittsburgh-Princeton conference series on the foundations of physics, 2013–2015
- Symposium on categorical perspectives in the philosophy of physics. Philosophy of Science Association Meeting, 2010

– Workshop on Kierkegaard, Objectivity, and Subjectivity. July 2025
– Workshop on Georg Brandes and the Modern Breakthrough. May 2025

Organizer: Conference on understanding quantum mechanics through mathematical innovation. Princeton, Oct 2007

Organizer: Conference on equivalent theories in science and metaphysics. Princeton, Mar 2015

External dissertation examiner: University of Geneva; University of Texas; University of Utrecht (foundations of science); Radboud University of Nijmegen (mathematics); Carnegie Mellon University; LMU Munich; University of Aberdeen (theology); Roskilde Universitet; University of Salzburg

External reviewer for faculty hiring and promotions: Boston University, Chicago, Columbia, CUNY, CCNY, Drexel, Georgetown, London School of Economics, National Technical University of Athens, Notre Dame, NYU, Oxford, Radboud University of Nijmegen, Rutgers, St. Olaf College, Stanford, UC Irvine, University of Chicago, University of Edinburgh, University of Michigan, Pittsburgh, University of Southern California, University of Vienna, University of Washington, University of Waterloo, Wheaton College, Yale

Academic Advisory Board: National Speech and Debate Association, 2015–16.

Invited participant in Princeton Council of the Humanities, philosophy of time group, 2003–04

Invited participant in New York Institute of Philosophy, cosmology and religion discussion group, 2008

Referee for:

Analysis, *Annals of Physics*, *Annals of Pure and Applied Logic*, *Australasian Journal of Philosophy*, *British Journal for the Philosophy of Science*, *Bulletin of Symbolic Logic*, *Canadian Journal of Philosophy*, *Christian Scholars Review*, *Communications in Mathematical Physics*, *Erkenntnis*, *European Journal for Philosophy of Science*, *Foundations of Physics*, *International Studies in the Philosophy of Science*, *Journal for General Philosophy of Science*, *Journal of Logic & Analysis*, *Journal of Mathematical Physics*, *Journal of Physics A*, *Logic and Logical Philosophy*, *Notre Dame Journal of Formal Logic*, *Nous*, *Philosophia Mathematica*, *Philosophy Compass*, *Philosopher's Imprint*, *Philosophy and Phenomenological Research*, *Philosophical Studies*, *Philosophy of Science*, *Philosophical Transactions of the Royal Society*, *Physics Letters A*, *Physical Review A*, *Physical Review Letters*, *Ratio*, *Religious Studies*, *Reviews of Mathematical Physics*, *Science and Christian Belief*, *Studia Logica*, *Studies in History and Philosophy of Science*, *Studies in History and Philosophy of Modern Physics*, *Theoria*, Quantum Physics and Logic (QPL 2011); National Science Foundation (USA); Engineering and Science Research Council (UK); Israel Science Foundation; Netherlands Organisation for Scientific Research (NWO); Royal Netherlands Academy of Arts and Sciences (KNAW); Social Sciences and Humanities Research Council of Canada; L'Agence Nationale de la Recherche (= National Science Foundation of France); Austrian Science Fund (FWF); The German-Israeli Foundation for Scientific Research and Development; European Research Council; National Research, Development and Innovation Office of Hungary; Foundation for Polish Science; The Leverhulme Trust; Elsevier Scientific Publishers; Hackett Publishing; John Templeton Foundation; Templeton World Charity Foundation; Oxford University Press; Oneworld Publications; Princeton University Press; Springer Verlag; Wiley-Blackwell; Yale University Press.

Service to the Philosophy Department at Princeton:

appointments committee 2018–20
director of PhD placement 2009–12, 2016–17, 2022–
director of colloquium committee 2010–11, 2016–17
graduate language examiner (German) 2001–
computer committee 2004–06, 2014–15
curriculum committee 2001–03, 2004–06, 2007–08

graduate admissions committee 2001–02, 2003–06, 2007–08, 2009–11, 2013–14
library committee 2009–10

Languages

- English, native speaker
- Danish, C1 (Studieprøven)
- German, C1 (Zentrale Mittelstufenprüfung)
- Dutch, B2
- French, reading

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