

Samuel C. Fletcher

Curriculum Vitae

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Areas of Specialization and Competence

- AOS Philosophy of Physics, Philosophy of Science, Philosophy of Statistics.
- AOC Logic, Theory of Computation, Metaphilosophy, History of Philosophy of Science.

Academic Employment and Affiliations

Primary Appointments

- 2015– **Assistant Professor**, *Department of Philosophy, University of Minnesota, Twin Cities.*
- 2014–2017 **Marie Curie Fellow**, *Munich Center for Mathematical Philosophy, Ludwig-Maximilians-Universität.*
- Summer 2013 **Teaching Associate**, *University of California, Irvine.*
- Spring 2010 **Researcher for Everett Papers Archive and Commentary**, *National Science Foundation, University of California, Irvine.*
For PI Prof. Jeffrey Barrett.

Secondary Appointments

- 2017– **External Member**, *Munich Center for Mathematical Philosophy, Ludwig-Maximilians-Universität.*
- 2016– **Resident Fellow**, *Minnesota Center for Philosophy of Science, University of Minnesota, Twin Cities.*

Visiting Appointments

- April-May 2020 **Visiting Associate Research Professor**, *Department of Logic and Philosophy of Science, University of California, Irvine.*
- Spring 2020 **Visiting Fellow**, *Center for Philosophy of Science, University of Pittsburgh.*
- May 2017 **Visiting Scholar**, *Department of Philosophy, University of Geneva.*
- Spring 2014 **Visiting Scholar**, *Department of Philosophy, University of Pittsburgh.*

Education

- 2014 **PhD in Philosophy**, *University of California, Irvine*.
Philosophy of physics emphasis.
Dissertation Title: "Similarity and Spacetime: Studies in Intertheoretic Reduction and Physical Significance."
Committee: James Weatherall (UCI, chair), Jeffrey A. Barrett (UCI), P. Kyle Stanford (UCI), Christian Wüthrich (UCSD).
- 2012 **MA in Philosophy**, *University of California, Irvine*.
- 2012 **MS in Statistics**, *University of California, Irvine*.
- 2008 **AB in Physics**, *Princeton University*.
Certificate (minor) in Applied and Computational Mathematics.
Senior Thesis Title: "Characterization of the Quantum States Simulable with Two Popescu-Rohrlich Boxes."
Advisor: Hans Halvorson.

Publications

All items peer refereed except as indicated.

* *editor refereed*

** *not refereed*

Edited Collections

- *[E3] *Evidence Amalgamation in the Sciences*, with Jürgen Landes and Roland Poellinger, *Synthese* special issue 196(8) (2019).
13 refereed contributions.
- *[E2] *Infinite Idealizations in Science*, with Patricia Palacios, Laura Ruetsche, and Elay Shech, *Synthese* special issue 196(5) (2018).
14 refereed contributions.
- [E1] *Physical Perspectives on Computation, Computational Perspectives on Physics*, with Michael E. Cuffaro, Cambridge University Press (2018).
12 commissioned chapters.

Journal Articles

- [A18] "An Invitation to Approximate Symmetry, with Three Applications to Intertheoretic Relations." *Synthese* (forthcoming).
- [A17] "Similarity Structure and Emergent Properties." *Philosophy of Science* (forthcoming).
- [A16] "The Principle of Stability." *Philosophers' Imprint* (forthcoming).
- [A15] "Which Worldlines Represent Possible Particle Histories?" *Foundations of Physics* (forthcoming). <https://doi.org/10.1007/s10701-019-00260-4>
- [A14] "On the Reduction of General Relativity to Newtonian Gravitation." *Studies in History and Philosophy of Modern Physics* (forthcoming). <https://doi.org/10.1016/j.shpsb.2019.04.005>
- [A13] "Counterfactual Reasoning within Physical Theories." *Synthese* (forthcoming). <https://doi.org/10.1007/s11229-019-02085-0>

- [A12] "On Representational Capacities, with an Application to General Relativity." *Foundations of Physics* (forthcoming). <https://doi.org/10.1007/s10701-018-0208-6>
- *[A11] "Evidence Amalgamation in the Sciences: An Introduction" (with Jürgen Landes and Roland Poellinger). *Synthese* 196(8): 3163–3188 (2019). <https://doi.org/10.1007/s11229-018-1840-6>
- [A10] "Minimal Approximations and Norton's Dome." *Synthese* 196(5): 1749–1760 (2019). <https://doi.org/10.1007/s11229-018-1676-0>
- *[A9] "Infinite Idealizations in Science: An Introduction" (with Patricia Palacios, Laura Ruetsche, and Elay Shech). *Synthese* 196(5): 1657–1669 (2019). <https://doi.org/10.1007/s11229-018-02069-6>
- [A8] "Stopping Rules as Experimental Design." *European Journal for Philosophy of Science* 9: 29 (2019). <https://doi.org/10.1007/s13194-019-0252-x>
- [A7] "Global Spacetime Similarity." *Journal of Mathematical Physics* 59(11): 112501 (2018). <https://doi.org/10.1063/1.5052354>
- [A6] "Computers in Abstraction/Representation Theory." *Minds & Machines*: 28(3): 445–463 (2018). <https://doi.org/10.1007/s11023-018-9470-9>
- [A5] "Would Two Dimensions Be World Enough for Spacetime?" (with J. B. Manchak, Mike D. Schneider, and James Owen Weatherall). *Studies in History and Philosophy of Modern Physics* 63: 100–113 (2018). <https://doi.org/10.1016/j.shpsb.2017.12.004>
- [A4] "On Noncontextual, Non-Kolmogorovian Hidden Variable Theories" (with Benjamin H. Feintzeig). *Foundations of Physics* 47(2): 294–315 (2017). <https://doi.org/10.1007/s10701-017-0061-z>
- [A3] "Similarity, Topology, and Physical Significance in Relativity Theory." *The British Journal for the Philosophy of Science* 67(2): 365–389 (2016). <https://doi.org/10.1093/bjps/axu044>
- [A2] "Light Clocks and the Clock Hypothesis." *Foundations of Physics* 43(11): 1369–1383 (2013). <https://doi.org/10.1007/s10701-013-9751-3>
- [A1] "What Counts as a Newtonian System? The View from Norton's Dome." *European Journal for Philosophy of Science* 2(3): 275–297 (2012). <https://doi.org/10.1007/s13194-011-0040-8>

Book Chapters

- *[C8] "Evidence in Classical Statistics" (with Conor Mayo-Wilson), in Maria Lasonen-Aarnio and Clayton Littlejohn, eds. *Routledge Handbook of Evidence* (forthcoming).
- *[C7] "Relativistic Spacetime Structure," in Eleanor Knox and Alastair Wilson, eds. *Routledge Companion to the Philosophy of Physics* (forthcoming).
- *[C6] "Modality in Physics," in Otávio Bueno and Scott A. Shalkowski, eds. *Routledge Handbook of Modality* (forthcoming).

- [C5] "Extending List's Levels," (with Neil Dewar and Laurenz Hudetz) in Marek Kus and Bartłomiej Skowron, eds. *Category Theory in Physics, Mathematics, and Philosophy*. Springer (forthcoming).
- [C4] "Approximate Local Poincaré Spacetime Symmetry in General Relativity," in Claus Beisbart, Tilman Sauer, and Christian Wüthrich, eds. *Thinking about Space and Time*. Einstein Studies, vol. 15. Birkhäuser (forthcoming).
- [C3] "Similarity Structure on Scientific Theories," in Bartłomiej Skowron, ed. *Topological Philosophy*. de Gruyter (forthcoming).
- **[C2] "Introduction," (with Micheal E. Cuffaro) in Michael E. Cuffaro and Samuel C. Fletcher, eds. *Physical Perspectives on Computation, Computational Perspectives on Physics*. Cambridge University Press, pp. 1–19 (2018).
- [C1] "Indeterminism, Gravitation, and Spacetime Theory," in Gábor Hofer-Szabó and Leszek Wroński, eds. *Making It Formally Explicit: Probability, Causality and Indeterminism*. Springer, pp. 179–191 (2017). https://doi.org/10.1007/978-3-319-55486-0_10

Book Reviews

- *[R1] "Against the Topologists: Essay Review of *New Foundations for Physical Geometry*." *Philosophy of Science* 84(3): 595–603 (2017). <https://doi.org/10.1086/692150>

Conference Proceedings

- **[P1] "Towards a Graph-Theoretic Characterization of Popescu-Rohrlich Box Simulation Strategies," in A. Lvovsky, ed. *Proceedings of Quantum Communication, Measurement and Computing*. Melville, NY: AIP Conference Proceedings 1110 (2009).

Other

- **[O3] "What's Hot in Mathematical Philosophy," *The Reasoner* 12(6): 50–51 (2018). <https://blogs.kent.ac.uk/thereasoner/files/2018/06/TheReasoner-126.pdf>
- **[O2] Foreword to Andrew Lucia, *A Catalog of Difference*. UMinn Papers on Architecture 2. Minneapolis: University of Minnesota School of Architecture (2017).
- **[O1] "U-Phil: 'Model Verification and the Likelihood Principle,'" *Error Statistics Philosophy* (2013). <https://errorstatistics.com/2013/01/27/u-phil-s-fletcher-n-jinn/>

Principal Awards, Grants, and Honors

- 2020–2021 **Large Grant Program: Intelligence in the Physical World**, *Foundational Questions Institute & Fetzer Franklin Fund*, \$89,448.
For "Agential Abstraction/Representation Theory."
- Spring 2020 **Single Semester Leave**, *University of Minnesota, Twin Cities*.
For research project, "A New Philosophy for Classical Statistics."

- 2019–2022 **Interdisciplinary Collaborative Workshop**, *College of Liberal Arts, University of Minnesota, Twin Cities*, \$58,910.
For "The Many Faces of Reproducibility," with co-PIs Alan C. Love, Galin L. Jones, Matthew McGue, Alexander J. Rothman, and Niels G. Waller.
- 2019–2022 **Imagine Fund Annual Faculty Award**, *University of Minnesota, Twin Cities*, \$5,000.
For "Agency, Epistemic Community, and the Nature of Computation."
- 2019–2020 **Grant-in-Aid of Research, Artistry and Scholarship**, *Office of the Vice President for Research, University of Minnesota, Twin Cities*, \$28,849.
For "Rethinking Formal Methods in Philosophy."
- 2018–2019 **Small Grant Fund**, *American Philosophical Association*, \$5,000.
For "Rethinking Formal Methods Training in Philosophy."
- 2017 **Faculty Development Leave**, *University of Minnesota, Twin Cities*.
For completion of Marie Curie Fellowship, Fall 2017.
- 2016 **Finalist: The Secret Life of Buildings Architectural Design Competition**, *Center for American Architecture and Design, School of Architecture, University of Texas, Austin*.
With Andrew Lucia and Iroha Ito.
- 2016 **Fund for Diversity and Inclusiveness Grant**, *American Philosophical Association*, \$1,000.
For "Third Summer School on Mathematical Philosophy for Female Students."
- 2014–2017 **Marie Curie International Incoming Fellowship**, *European Commission*.
- 2014 **Order of Merit: Outstanding Graduate Student Scholarship**, *School of Social Sciences, University of California, Irvine*.
- 2013–2014 **Doctoral Dissertation Improvement Grant**, *National Science Foundation*, \$11,669.
- 2010–2014 **Graduate Research Fellowship**, *National Science Foundation*.
- 2009 **Robert K. Clifton Memorial Book Prize**, *University of Western Ontario*.
For "A Stop on the Hard Road to Determinism: Cases from Classical Physics."
- 2008–2014 **School of Social Sciences Merit Fellowship**, *University of California, Irvine*.
- 2008 **Maria Goeppert-Mayer Studentship**, *American Physical Society*.
For "The Manhattan Project and Its Effects on American Women Scientists."
- 2004–2008 **National Merit Scholar**, *National Merit Scholarship Corporation*.

Presentations

Invited Presentations

- 9/2019 Categorical Approaches to Reduction and Limits, Munich Center for Mathematical Philosophy, LMU Munich (by videoconferencing).
- 6/2019 Work in Progress Seminar, Department of Philosophy, University of Salzburg.
- 9/2018 Work in Progress Series, Department of Philosophy, University of Minnesota, Twin Cities.

- 7/2018 Theory Construction in Physics: Historical and Philosophical Perspectives (Université de Montréal).
- 6/2018 Modality in Physics (Faculty of Philosophy, Jagiellonian University).
- 6/2018 A Mini-Workshop on the Problem of Motion and Geodesic Theorems in GR (California Institute of Technology).
- 6/2018 History and Philosophy of Science Seminar Series, California Institute of Technology.
- 3/2018 Multiple Realizability, Causation and Reductive Explanations in Science (Valparaiso, Chile).
- 3/2018 Department of Philosophy, Universidad Alberto Hurtado (Santiago de Chile).
- 12/2017 Research Colloquium in Philosophy (Chairs of Philosophy and History and Philosophy of the Mathematical Sciences, ETH Zürich).
- 11/2017 New Perspectives on Inter-theory Reduction (Department of Philosophy, University of Salzburg).
- 11/2017 Work in Progress Seminar, Department of Philosophy, University of Salzburg.
- 11/2017 Oxford Philosophy of Physics Research Seminar (Oxford University).
- 10/2017 Department of Philosophy, University of Bristol.
- 10/2017 CamPoS Group (University of Cambridge).
- 7/2017 Munich Center for Mathematical Philosophy, LMU Munich.
- 7/2017 Symmetries and Asymmetries in Physics (Leibniz University Hannover).
- 6/2017 With and Without Measure: Symmetry and Symmetry Breaking (MCMP, LMU Munich).
- 5/2017 Space and Time after Quantum Gravity Speaker Series (Department of Philosophy, University of Geneva).
- 7/2016 The Hole Shebang: New Perspectives on the Hole Argument (London School of Economics).
- 6/2016 Munich Center for Mathematical Philosophy, LMU Munich.
- 6/2016 Department of Logic and Philosophy of Science, University of the Basque Country (San Sebastián/Donostia, Spain).
- 5/2016 Department of Philosophy, Boğaziçi University (Istanbul, Turkey).
- 5/2016 5th Budapest-Krakow Workshop on Probability, Causality and Determinism (Institute of Philosophy, Hungarian Academy of Sciences, Budapest).
- 3/2016 Division of Health Policy and Management, School of Public Health, University of Minnesota, Twin Cities.
- 3/2016 School of Statistics, University of Minnesota, Twin Cities.
- 3/2016 Departments of Philosophy and Physics, Macalaster College (St. Paul, MN).
- 2/2016 5th International Ontological Workshop: Topological Philosophy (International Center for Formal Ontology, Warsaw).

- 2/2016 Department of Epistemology, Institute of Philosophy, Jagiellonian University (Krakow, Poland).
- 1/2016 Reduction in Physics and Biology (Institute of Philosophy and Complexity Sciences, Santiago, Chile).
- 11/2015 Department of Philosophy, George Washington University.
- 11/2015 Weekly Meeting, Department of Philosophy, University of Minnesota, Twin Cities.
- 5/2015 3rd Budapest-Krakow Workshop on Probability, Causality and Determinism (Institute of Philosophy, Hungarian Academy of Sciences, Budapest).
- 4/2015 Work in Progress Seminar, Munich Center for Mathematical Philosophy, LMU Munich.
- 4/2015 42nd Annual Philosophy of Science Conference (Inter-University Centre Dubrovnik).
- 3/2015 Department of Philosophy, University of Belgrade.
- 3/2015 Astronomical Observatory of Belgrade.
- 3/2015 Chance Encounters (University of Groningen).
- 3/2015 Space-time Structuralism (Erasmus University Rotterdam).
- 3/2015 Descartes Centre, Utrecht University.
- 3/2015 Theoretical High Energy Physics Lunch Seminar Series, Radboud University Nijmegen.
- 2/2015 Institute for History and Philosophy of Science and Technology, Paris.
- 2/2015 Department of Philosophy, Communication and Media Studies, University of Rome 3.
- 1/2015 Gravitation and Relativity Group, Institute for Theoretical Physics, University of Cologne.
- 12/2014 Irvine-Munich Workshop on Foundations of Classical and Quantum Field Theories (MCMP, LMU Munich).
- 12/2014 2nd Budapest-Krakow Workshop on Probability, Causality and Determinism (Jagiellonian University, Krakow).
- 12/2014 Department of Philosophy, University of Salzburg.
- 11/2014 Philosophy of Physics Workshop (University of Bucharest).
- 11/2014 Department of Theoretical Philosophy, University of Bucharest.
- 10/2014 Vienna Center for Quantum Science and Technology.
- 10/2014 Munich Center for Mathematical Philosophy, LMU Munich.
- 10/2014 Sigma Club (London School of Economics).
- 9/2014 Theoretical Philosophy Forum, Eötvös University (Budapest).
- 9/2014 Institute of Philosophy, Hungarian Academy of Sciences (Budapest).
- 4/2014 HPS Work in Progress Series (University of Pittsburgh).
- 1/2014 Department of Philosophy, University of Minnesota, Twin Cities.
- 1/2014 Department of Philosophy, Ohio University.
- 12/2013 Center for the Humanities Research Group: The Fundamental Nature of Time and Change (University of California, San Diego).

- 11/2013 Oxford Philosophy of Physics Research Seminar (Oxford University).
- 11/2013 CamPoS Group (University of Cambridge).
- 11/2013 Sigma Club (London School of Economics).
- 10/2013 Philosophy of Science Reading Group (University of Washington).
- 4/2013 Southern California Philosophy of Physics Group (University of California, Irvine).
- 9/2010 Southern California Philosophy of Physics Group (University of California, Irvine).
- 6/2010 Southern California Philosophy of Physics Group (University of California, Irvine), with Jason Hoelscher-Obermaier.

Contributed Presentations

- 2/2020 Philosophy of Time Society, Central Division of the American Philosophical Association Annual Meeting (Chicago).
- 9/2019 European Philosophy of Science Association Biennial Conference (University of Geneva).
- 8/2019 16th Congress of Logic, Methodology and Philosophy of Science and Technology (Czech Technical University in Prague).
- 7/2019 British Society for the Philosophy of Science Annual Meeting (Durham University).
- 7/2019 Quantum Indeterminacy Workshop (Dartmouth College), with David Taylor.
- 6/2019 MCMP-Western Ontario Workshop on Computation in Scientific Theory and Practice (LMU Munich).
- 5/2019 Emergence: Conceptual and Philosophical Asepcts (Dutch Institute for Emergent Phenomena, Amsterdam).
- 4/2019 Philosophy of Social Science Roundtable (University of Vermont).
- 3/2019 DPG Spring Meeting of the Matter and Cosmos Section (TU Munich).
- 11/2018 26th Biennial Meeting of the Philosophy of Science Association (Seattle, WA).
- 7/2018 19th UK and European Meeting on the Foundations of Physics (Utrecht University).
- 7/2018 7^e Congrès de la Société de Philosophie des Sciences (University of Nantes).
- 6/2018 UK XPhi Conference 2018 (University College London).
- 10/2017 The Structure of Scientific Revolutions (Durham University).
- 9/2017 Thinking about Space and Time: 100 Years of Applying and Interpreting General Relativity (University of Bern).
- 9/2017 European Philosophy of Science Association Biennial Conference (University of Exeter).
- 8/2017 Logic, Relativity, and Beyond: 3rd International Conference (Rényi Institute, Budapest).
- 8/2017 Ninth European Congress of Analytic Philosophy (LMU Munich).
- 7/2017 British Society for the Philosophy of Science Annual Meeting (University of Edinburgh).
- 7/2017 Direct Empirical Status and the Ontology of Symmetries in Physics (Université Catholique de Louvain).
- 6/2017 Triennial International Conference of the Italian Society for Logic and Philosophy of Science (University of Bologna).

- 6/2017 Quantum Contextuality in Quantum Mechanics and Beyond (Prague, Czechia).
- 10/2016 32nd Annual Boulder Conference on History and Philosophy of Science, "Gravity: Its History and Philosophy," (University of Colorado, Boulder).
- 8/2016 5th Summer School in the History and Philosophy of Science: Probability and Quantum Mechanics (University of Tübingen).
- 7/2016 18th UK and European Meeting on the Foundations of Physics (London School of Economics).
- 7/2016 British Society for the Philosophy of Science Annual Meeting (University of Cardiff).
- 6/2016 6^e Congrès de la Société de Philosophie des Sciences (University of Lausanne).
- 6/2016 First Principles in Science: Their Epistemic Status and Justification (LMU Munich).
- 6/2016 Infinite Idealizations in Science (LMU Munich).
- 6/2016 Fourth International Conference on the Nature and Ontology of Spacetime (Varna, Bulgaria).
- 5/2016 Philosophy of Science in a Forest 2016—Dutch Association for Philosophy of Science (Doorn, the Netherlands).
- 2/2016 Philogica IV: Fourth Colombian Conference on Logic, Epistemology and Philosophy of Science (Bogotá, Colombia).
- 11/2015 Iowa Philosophical Society (Iowa State University).
- 10/2015 Effective Theories, Mixed Scale Modeling, and Emergence (University of Pittsburgh).
- 8/2015 9th Principia International Symposium: Possible Worlds and their Applications in Philosophy and the Sciences (Florianópolis, Brazil).
- 8/2015 Logic, Relativity, and Beyond: 2nd International Conference (Rényi Institute, Budapest).
- 8/2015 15th Congress of Logic, Methodology and Philosophy of Science (University of Helsinki).
- 7/2015 4th Summer School in the History and Philosophy of Science: Idealizations in Physics (University of Tübingen).
- 7/2015 8th Conference of the Spanish Society for Logic, Methodology and Philosophy of Science (University of Barcelona).
- 7/2015 British Society for the Philosophy of Science Annual Meeting (University of Manchester).
- 6/2015 5th World Congress and School on Universal Logic (University of Istanbul).
- 4/2015 3rd Meeting of the Nordic Network for Philosophy of Science (TINT, University of Helsinki).
- 3/2015 Rethinking Foundations of Physics (Dorfgastein, Austria).
- 3/2015 Formal Methods and Science in Philosophy (Inter-University Centre Dubrovnik).
- 3/2015 79th Annual Meeting of the Deutsche Physikalische Gesellschaft (TU Berlin).
- 1/2015 Quantum Computation, Quantum Information, and the Exact Sciences (LMU Munich).
- 10/2014 The Metaphysics of Quantum Mechanics (Corpus Christi College, Oxford University, poster presentation).

- 9/2014 DPG Physics School on General Relativity @ 99 (Bad Honnef, Germany, poster presentation).
 - 8/2014 3rd International Interdisciplinary Summer School: Arches and Scaffoldings (University of Tübingen).
 - 7/2014 2nd International Summer School in Philosophy of Physics: Probabilities in Physics (Saig, Germany).
 - 7/2014 British Society for the Philosophy of Science Annual Meeting (Fitzwilliam College, University of Cambridge).
 - 6/2014 Society for Exact Philosophy Annual Meeting (CalTech, poster presentation).
 - 3/2014 2nd Irvine-Pittsburgh-Princeton Conference on the Mathematical and Conceptual Foundations of Physics (University of California, Irvine).
 - 11/2013 Reduction and Emergence in the Sciences (LMU Munich).
 - 11/2013 4th Madrid Workshop on New Trends in the Philosophy of Science: Inferentialism in Epistemology and Philosophy of Science (UNED Madrid).
 - 9/2013 Seminar on the Philosophical Foundations of Quantum Gravity (University of Illinois, Chicago).
 - 6/2013 Reduction and Emergence in Physics (LMU Munich).
 - 4/2013 Irvine-Pittsburgh-Princeton Conference on the Mathematical and Conceptual Foundations of Physics (University of Pittsburgh).
 - 11/2012 Virginia Tech Graduate Philosophy of Science Conference (Blacksburg, VA).
 - 9/2011 Kant and the Exact Sciences Graduate Conference (University of Notre Dame).
 - 7/2011 14th Congress of Logic, Methodology, and Philosophy of Science (University of Nancy, France), with Jason Hoelscher-Obermaier.
 - 3/2010 University of Pittsburgh/Carnegie Mellon University Joint Graduate Philosophy Conference.
 - 4/2009 6th Western Ontario Logic, Mathematics & Physics Graduate Philosophy Conference (University of Western Ontario).
 - 8/2008 9th International Conference on Quantum Communication, Measurement and Computing (University of Calgary, poster presentation).
 - 4/2008 American Physical Society, Annual April Meeting (St. Louis, MO).
 - 10/2007 American Physical Society, Division of Nuclear Physics Annual Meeting (Newport News, VA, poster presentation).
 - 8/2007 Student Symposium, Los Alamos National Laboratory.
- Seminar Guest Lectures
- 12/2017 Philosophy of Statistics (Dr. Rush Stewart), Munich Center for Mathematical Philosophy, LMU Munich.
 - 12/2017 Reduction and Emergence (Patricia Palacios), Munich Center for Mathematical Philosophy, LMU Munich.

- 7/2017 Reduction and Emergence (Dr. Neil Dewar), Munich Center for Mathematical Philosophy, LMU Munich.
 - 2/2016 Research Methods (Dr. George Biltz), School of Kinesiology, University of Minnesota, Twin Cities.
 - 7/2014 Explanation and Reduction (Prof. Andreas Hüttemann), Department of Philosophy, University of Cologne.
- Public and Outreach Presentations
- 4/2019 Anselm House University Rountable: Are the sciences intellectually self-sufficient? (University of Minnesota, Twin Cities)
 - 2/2019 A Brighter U: CLA in Space (University of Minnesota, Twin Cities).
 - 1/2018 Honors Mentor Connection (Wayzata High School, Plymouth, MN).
 - 4/2017 Let's Nerd Out! 5 (Minneapolis, MN).
 - 3/2015 Who's In Town Lecture Series (Amsterdam University College).

Teaching Experience

University of Minnesota, Twin Cities

- Fall 2019 **Scientific Thought.**
Writing-intensive mid-level philosophy of science survey. Course website: <https://canvas.umn.edu/courses/132089>.
- Fall 2019 **Mathematical Methods for Philosophy.**
Introduction to sets, graphs, automata, and probability and decision theory, explicitly and through example applications. Course website: <https://canvas.umn.edu/courses/132254>.
- Spring 2019 **Symbolic Logic II.**
Graduate-level computability and incompleteness. Course website: <https://canvas.umn.edu/courses/95344>.
- Spring 2019 **Physical Perspectives on Computation, Computational Perspectives on Physics.**
Graduate seminar. Course website: <https://canvas.umn.edu/courses/95441>.
- Spring 2019 **Directed Study: Equivalent Definitions of Computation.**
Turing machines, abacus machines, and recursive functions (1 undergraduate, most of the first eight chapters of Boolos, Burgess, and Jeffrey's *Computation and Logic* (5th ed., Cambridge UP, 2007)).
- Fall 2018 **Space and Time.**
Cross-listed undergraduate/graduate seminar. Course website: <https://canvas.umn.edu/courses/70805>.
- Fall 2018 **Directed Study: Space and Time.**
Technical supplement (3 students) to concurrent undergraduate/graduate seminar.
- Spring 2018 **Introduction to Logic.**
Lower division sentential and predicate logic with natural deduction. Course website: <https://ay17.moodle.umn.edu/course/view.php?id=8220>.

- Spring 2018 **Scientific Thought.**
Writing-intensive mid-level philosophy of science survey. Course website: <https://ay17.moodle.umn.edu/course/view.php?id=8218>.
- Spring 2017 **Introduction to Logic.**
Lower division sentential and predicate logic with natural deduction. Course website: <https://ay15.moodle.umn.edu/course/view.php?id=9996>.
- Spring 2017 **Symbolic Logic II.**
Graduate-level computability and incompleteness. Course website: <https://ay16.moodle.umn.edu/course/view.php?id=9998>.
- Spring 2017 **Directed Study: Conceptual and Mathematical Foundations of Classical Space-Time Theory.**
Differential geometry and physics of special and general relativity (1 undergraduate student, at the level of Woodhouse's *General Relativity* (Springer, 2007)).
- Fall 2016 **Scientific Thought.**
Writing-intensive mid-level philosophy of science survey. Course website: <https://ay16.moodle.umn.edu/course/view.php?id=3839>.
- Fall 2016 **Space and Time.**
Cross-listed undergraduate/graduate seminar. Course website: <https://ay16.moodle.umn.edu/course/view.php?id=3840>.
- Fall 2016 **Directed Study: Space and Time.**
Technical supplement (2 students) to concurrent undergraduate/graduate seminar.
- Spring 2016 **Revolutions in Science: Lavoisier, Darwin, and Einstein.**
Lower division, 1/3 of lectures (5 weeks), with Victor Boantza and Mark Borrello. Course website: <https://ay15.moodle.umn.edu/course/view.php?id=12003>.
- Spring 2016 **Scientific Thought.**
Writing-intensive mid-level philosophy of science survey. Course website: <https://ay15.moodle.umn.edu/course/view.php?id=11035>.
- Spring 2016 **Introduction to Logic.**
Lower division sentential and predicate logic with natural deduction. Course website: <https://ay15.moodle.umn.edu/course/view.php?id=10324>.
- Fall 2016 **Philosophy of Statistics.**
Graduate seminar. Course website: <https://ay15.moodle.umn.edu/course/view.php?id=7242>.
University of California, Irvine
- Summer 2013 **Critical Reasoning.**
Lecturing and grading, lower division informal and formal sentential logic. Course website: <https://eee.uci.edu/13y/66010>.
- Spring 2013 **Introduction to Inductive Logic, Teaching Assistant.**
Lower division.
- Winter 2010 **Introduction to Symbolic Logic, Teaching Assistant.**
Lower division predicate logic.

Fall 2009, **Critical Reasoning**, *Teaching Assistant*.
Winter 2009, Lower division informal and formal sentential logic.
Fall 2008

Center For Talented Youth (Johns Hopkins University)

Summer 2009 **Mathematical Logic**, *Teaching Assistant*, Loyola Marymount University, Los Angeles, CA.
Equivalent to lower division predicate logic.
Summer 2008 **Nuclear Science**, *Teaching Assistant*, Roger Williams University, Bristol, RI, 2 sessions of same course.
Equivalent to lower division course for non-majors.

Professional and Academic Service and Training

School and Conference Organization

- 2020 **Bayesian Epistemology: Perspectives and Challenges**, *Program Committee*, Munich Center for Mathematical Philosophy, LMU Munich.
- 2020 **20th UK and European Meeting on the Foundations of Physics.**, *Program Committee*, Paris.
- 2019 **American Philosophical Association Central Division Annual Meeting, 2020**, *Program Committee*, Chicago.
Organized two invited symposia, reviewed 30 submitted papers, and invited commentators and chairs for three sessions.
- 2019 **Rethinking Formal Methods in Philosophy**, *Principal Organizer*, University of Minnesota, Twin Cities.
Two-day workshop with 10 invited speakers and a public lecture by Cailin O'Connor on her 2018 book (with Jim Weatherall), *The Misinformation Age*.
- 2019 **ILMPS (Irvine-London-Munich-PoliMi-Salzburg) 2019 Conference**, *Program Committee*, University of Salzburg.
Reviewed one submitted paper.
- 2019 **European Philosophy of Science Association Biennial Conference (EPSA19)**, *Program Committee*, University of Geneva.
Reviewed 19 extended abstracts.
- 2019 **British Society for the Philosophy of Science Annual Meeting**, *Program Committee*, Durham University.
Reviewed 7 extended abstracts.
- 2018 **IMPS (Irvine-Munich-PoliMi-Salzburg) 2018 Conference**, *Program Committee*, University of Salzburg.
Reviewed one submitted paper.
- 2018 **British Society for the Philosophy of Science Annual Meeting**, *Program Committee*, Oxford University.
Reviewed 15 extended abstracts.

- 2018 **Ninth International Workshop on Physics and Computation**, *Program Committee*, Fontainebleau, France.
Reviewed 3 submitted papers.
- 2017 **Fourth Summer School on Mathematical Philosophy for Female Students**, *Organizing Committee*, Munich Center for Mathematical Philosophy, LMU Munich.
Week-long school, duties shared with Marianna Antonutti, Lavinia Picollo, and Gil Sagi.
- 2017 **British Society for the Philosophy of Science Annual Meeting**, *Program Committee*, University of Edinburgh.
Reviewed 15 extended abstracts.
- 2016 **Third Summer School on Mathematical Philosophy for Female Students**, *Organizing Committee*, Munich Center for Mathematical Philosophy, LMU Munich.
Week-long school, duties shared with Milena Ivanova and Karolina Krzyżanowska.
- 2016 **Infinite Idealizations in Science**, *Organizing Committee*, Munich Center for Mathematical Philosophy, LMU Munich.
Two-day workshop, duties shared with Patricia Palacios.
- 2016 **MuST 9: Evidence, Inference, and Risk**, *Program Committee*, Munich Center for Mathematical Philosophy, LMU Munich.
Reviewed two extended abstracts.
- 2015 **1st Munich Graduate Workshop in Mathematical Philosophy: Philosophy of Physics**, *Organizing Committee & Lecturer*, Munich Center for Mathematical Philosophy, LMU Munich.
Three-day workshop and school, organizing duties shared with Brian Padden, Patricia Palacios, and Karim Thébault. Delivered one seminar lecture.
- 2015 **Quantum Computation, Quantum Information, and the Exact Sciences**, *Organizing Committee*, Munich Center for Mathematical Philosophy, LMU Munich.
Two-day conference, duties shared with Michael Cuffaro and Johannes Kofler.
- 2014 **Irvine-Munich Workshop on Foundations of Classical and Quantum Field Theories**, *Organizing Committee*, Munich Center for Mathematical Philosophy, LMU Munich.
One-day workshop, duties shared with Karim Thébault.
- 2014 **2nd Irvine-Pittsburgh-Princeton Conference on the Mathematical and Conceptual Foundations of Physics**, *Program Committee*, University of California, Irvine.
Reviewed one submitted paper.
- 2013 **1st Irvine-Pittsburgh-Princeton Conference on the Mathematical and Conceptual Foundations of Physics**, *Program Committee*, University of Pittsburgh.
Reviewed one submitted paper.
- Conference Session Chairing
- 2/2020 **Central Division of the American Philosophical Association Annual Meeting**, Chicago.
- 9/2019 **Rethinking Formal Methods in Philosophy**, University of Minnesota, Twin Cities.

- 8/2019 **16th Congress of Logic, Methodology and Philosophy of Science and Technology**, Czech Technical University in Prague.
- 5/2019 **Emergence: Conceptual and Philosophical Aspects**, Dutch Institute for Emergent Phenomena, Amsterdam.
- 9/2017 **European Philosophy of Science Association Biennial Conference**, University of Exeter.
- 8/2017 **Logic, Relativity, and Beyond: 3rd International Conference**, Rényi Institute, Budapest.
- 8/2017 **Ninth European Congress of Analytic Philosophy**, LMU Munich.
- 7/2017 **British Society for the Philosophy of Science**, University of Edinburgh.
- 7/2016 **Foundations of Physics**, London School of Economics.
- 6/2016 **The Semantics of Theories**, LMU Munich.
- 6/2016 **First Principles in Science: Their Epistemic Status and Justification**, LMU Munich.
- 6/2016 **Infinite Idealizations in Science**, LMU Munich.
- 5/2016 **Philosophy of Science in a Forest 2016—Dutch Association for Philosophy of Science**, Doorn, the Netherlands.
- 2/2016 **Topological Philosophy**, Warsaw, Poland.
- 8/2015 **Logic, Relativity, and Beyond: 2nd International Conference**, Rényi Institute, Budapest.
- 8/2015 **15th Congress of Logic, Methodology and Philosophy of Science**, University of Helsinki.
- 4/2015 **1st Munich Graduate Workshop in Mathematical Philosophy: Philosophy of Physics**, LMU Munich.
- 1/2015 **Quantum Computation, Quantum Information, and the Exact Sciences**, LMU Munich.
- 11/2014 **24th Biennial Meeting of the Philosophy of Science Association**, Chicago, IL.
- 4/2014 **88th Annual Meeting of the American Philosophical Association, Pacific Division**, San Diego, CA.
- 11/2012 **23rd Biennial Meeting of the Philosophy of Science Association**, San Diego, CA.
Workshop Commentaries
- 3/2017 **Author Meets Readers**, "*Representing Space in the Scientific Revolution*," by David Marshall Miller, Minnesota Center for Philosophy of Science.
- 7/2015 **The Problem of Time in Perspective**, "*Changing Observables in Canonical General Relativity from Hamiltonian-Lagrangian Equivalence*," by J. Brian Pitts, Munich Center for Mathematical Philosophy.
- 4/2015 **Nordic Network for Philosophy of Science**, "*On the limits of classical computational systems*," by Michael Cuffaro, University of Helsinki.

Refereeing

2017, '19	<i>American Journal of Physics</i>	2018	<i>Analysis</i>
2014–15	Birkhäuser Press	2013–19	<i>British Journal for the Philosophy of Science</i>
2014	<i>Canadian Journal of Physics</i>	2016	De Gruyter Press
2019	<i>dialectica</i>	2014	<i>Ergo</i>
2014–15, '19	<i>Erkenntnis</i>	2014–17	<i>European Journal for Philosophy of Science</i>
2014–19	<i>Foundations of Physics</i>	2019	<i>Foundations of Science</i>
2016–17	<i>Journal for General Philosophy of Science</i>	2019	<i>Journal of Geometry and Physics</i>
2017	<i>Logique et Analyse</i>	2016	<i>Mind and Matter</i>
2014, '18	<i>Minds & Machines</i>	2019	<i>Philosophia</i>
2019	<i>Philosophical Inquiries</i>	2019	<i>Philosophical Papers</i>
2019	<i>Philosophical Quarterly</i>	2017	<i>Philosophy Compass</i>
2015	Polish National Science Centre	2016–19	National Science Foundation
2016	Oxford University Press	2010–19	<i>Philosophy of Science</i>
2010–12	<i>Physics Letters A</i>	2010	<i>Praxis Journal of Philosophy</i>
2016–17	<i>Review of Symbolic Logic</i>	2015, '18	Springer-Verlag
2014–19	<i>Studies in History and Philosophy of Modern Physics</i>	2018–19	<i>Studies in History and Philosophy of Science</i>
2015–19	<i>Synthese</i>	2017	<i>THEORIA</i>
2016–18	<i>Universe</i>		

Institutional and Departmental Service

- Fall '19 **Placement Committee**, Department of Philosophy, University of Minnesota, Twin Cities.
- Fall '18–present **Convener of Physics Interest Group**, Minnesota Center for Philosophy of Science, University of Minnesota, Twin Cities.
- 2018–2019, 2016–2017 **Admissions and Aid Committee**, Department of Philosophy, University of Minnesota, Twin Cities.
- Fall '18, '19 **Three-paper Exam Committee**, Department of Philosophy, University of Minnesota, Twin Cities.
- 2018 **Diversity Committee and Colloquium Coordinator**, Department of Philosophy, University of Minnesota, Twin Cities.
- 2015–2016 **Awards Committee**, Department of Philosophy, University of Minnesota, Twin Cities.
- 2015 **Search Committee**, Munich Center for Mathematical Philosophy, LMU Munich.
For Assistant Professor in philosophy of physics.

- 2013–2014 **Dean’s Fellowship Advisory Committee**, *School of Social Sciences, University of California, Irvine.*
Elected to review extramural fellowship applications.
- Other Service and Training
- 12/2018 **Final Studio Jury**, *School of Architecture, University of Minnesota, Twin Cities.*
One of four faculty evaluating graduate student project proposals.
- Spring '19, **Senior Thesis Advisor**, *Philosophy Program, University of Minnesota, Twin Cities.*
Fall '18 (x2), Advised student on capstone research paper.
Summer '18
- Fall '16, **Senior Project Advisor**, *Biology, Society, and Environment Program, University of Minnesota, Twin Cities.*
Spring '16 Advised student on capstone research paper.
- 5/2016 **Senior Final Studio Jury**, *School of Architecture, University of Minnesota, Twin Cities.*
One of four faculty evaluating senior undergraduate student project proposals.
- 4/16–5/16 **Senior Honors Thesis Committee**, *School of Physics and Astronomy, University of Minnesota, Twin Cities.*
Provided comments on thesis presentation, read and judged written thesis for *summa cum laude* recommendation.
- 4/2016 **Research Overview Speaker**, *School of Physics and Astronomy, University of Minnesota, Twin Cities.*
15-minute discussion of research group in history and philosophy of physics for prospective physics graduate students.
- 1/16–5/16 **Academic Advisor**, *College of Liberal Arts Dean’s Freshman Research and Creative Scholars Program, University of Minnesota, Twin Cities.*
Advised two students on project “Varieties of Bayesianism”.
- 11/2015 **First-year Midterm Studio Jury**, *School of Architecture, University of Minnesota, Twin Cities.*
One of four faculty evaluating graduate student project proposals.
- 9/15–8/17 **New Faculty Program**, *University of Minnesota, Twin Cities.*
Series of seminars, workshops, webinars, and personalized consultations to advance professional knowledge and skills.
- 10/14–1/15 **Reading Group Organizer**, *Philosophy of Physics, Munich Center for Mathematical Philosophy, LMU Munich.*
Winter term, focus on foundations of classical mechanics.
- 2013 **Safe Zone Training**, *LGBT Resource Center, University of California, Irvine.*
Training for informed and supportive affirmation of the LGBTQA community at UC Irvine.
- 9/11–12/11 **Graduate Seminar Organizer**, *Philosophy of Probability, University of California, Irvine.*
Sponsored by Brian Skyrms, attended by eight other graduate students and three faculty.

Professional Society Affiliations

- American Association for the Advancement of Science
- American Association of Philosophy Teachers
- American Philosophical Association
- American Physical Society
- British Society for the Philosophy of Science
- European Philosophy of Science Association
- Friends of the SEP (Stanford Encyclopedia of Philosophy) Society
- Foundational Questions Institute (FQXi)
- History of Science Society
- Marie Curie Alumni Association
- Philosophy of Science Association
- Society of Sigma Xi