

Noel Swanson

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Academic Positions

University of Delaware, *Associate Professor*, Philosophy, 2020–present

Assistant Professor, Philosophy, 2014–2020

Education

Ph.D. Philosophy, Princeton University, 2014

Dissertation: *Modular Theory and Spacetime Structure in Quantum Field Theory*
Advisor: Hans Halvorson

Student Researcher, Lawrence Berkeley National Lab, Physics Division, 2008–2009

Project: “Gravitational Wave Detection Using Pulsar Timing Arrays”
Supervisors: Tristan Smith, George Smoot

A.B. Physics & Philosophy, *magna cum laude*, Harvard University, 2008

Senior Thesis: *Renormalization, Asymptotics, and Scientific Explanation*
Advisors: Ned Hall, Peter Galison

Specializations

AOS — Philosophy of Physics, Philosophy of Science

AOC — Logic, Philosophy of Mathematics, Metaphysics, Epistemology

Research

Journal Articles

“On the Ostrogradski Instability; or, Why Physics Really Uses Second Derivatives,” *The British Journal for the Philosophy of Science*, 73 (1):23–46 (2022, online 2019), <https://doi.org/10.1093/bjps/axzo42>

“Can Quantum Thermodynamics Save Time?,” *Philosophy of Science*, 88 (2):281–302 (2021), <https://doi.org/10.1086/711569>

“Deciphering the Algebraic CPT Theorem,” *Studies in History and Philosophy of Modern Physics*, 68:106–25 (2019), <https://doi.org/10.1016/j.shpsb.2019.06.004>

"How to be a Relativistic Spacetime State Realist," *The British Journal for the Philosophy of Science*, 71 (3):933–57 (2020, online 2018), <https://doi.org/10.1093/bjps/axy041>

"A Philosopher's Guide to the Foundations of Quantum Field Theory," *Philosophy Compass*, 12 (5) (2017), <https://doi.org/10.1111/phc3.12414>

"The Conventionality of Parastatistics," with David Baker and Hans Halvorson, *The British Journal for the Philosophy of Science*, 66 (4):929–976 (2015, online 2014), <https://doi.org/10.1093/bjps/axuo18>

Review Essays

"Review of Jonathan Bain's *CPT Invariance and the Spin-Statistics Connection*," *Philosophy of Science*, 85 (3):530–539 (2018), <https://doi.org/10.1086/697743>

Unpublished Work

"Antiunitary Equivalence," (2020), <http://philsci-archive.pitt.edu/17151/>

"On North's 'The Structure of Physics'," with Hans Halvorson, (2012), <http://philsci-archive.pitt.edu/9314/>

Work in Progress

Relativistic Quantum Field Theory, Elements in the Philosophy of Physics, Cambridge University Press

"String Worldsheet Relationalism," with David Baker and Jacob Barandes

"Three Field Ontologies for QFT"

"State Space Axioms for Quantum Field Theory," with Hans Halvorson

"On Theoretical Equivalence"

"CPT, Spin-Statistics, and State Space Geometry"

"Is Algebraic QFT Narratable?"

"Counting Quanta"

Talks and Presentations

"Prospects for Wavefunctional Interpretations of QFT," *Foundations of Quantum Field Theory: 2023 Annual Philosophy of Physics Conference*, University of Western Ontario, May 2023

"Antiunitary Equivalence," *2021 Philosophy of Science Association Biennial Meeting*, Baltimore, November 2021

"Particles, Fields, or Both?," symposium with Mario Hubert, Dustin Lazarovichi, and Charles Sebens, *2021 European Philosophy of Science Association Biennial Meeting*, University of Turin, September 2021 (online)

"Relativistic Spacetime State Realism," Philosophy of Physics Bootcamp, Cambridge University/London School of Economics, February 2021 (online)

"Three Field Ontologies for QFT," Philosophy of Physics Reading Group, California Institute of Technology, January 2021 (online)

"CPT, Spin-Statistics, and Non-Causal Explanation," *Harvard Foundations of Physics Mini Workshop: Foundations of Quantum Field Theory*, Harvard University, May 2020 (online)

"On the Ostrogradski Instability; or, Why Physics Really Uses Second Derivatives," *2019 Society for the Metaphysics of Science Conference*, University of Toronto, November 2019

"On Theoretical Equivalence," University of Western Michigan, October 2019

"CPT, Spin-Statistics, and State Space Geometry," *Foundations of Quantum Field Theory: 2019 Annual Philosophy of Physics Conference*, University of Western Ontario, June 2019

"Can Quantum Thermodynamics Save Time?," *2018 Philosophy of Science Association Biennial Meeting*, Seattle, November 2018, *IPP Conference on the Mathematical and Conceptual Foundations of Physics*, University of Pittsburgh, April 2013

"A State Space Approach to Algebraic QFT," Institute for Quantum Studies, Chapman University, October 2018

"Communicating Science," *Greater Philadelphia Philosophy Consortium Public Issues Forum* (moderator), University of Delaware, October 2018

"Physics and Philosophy in the 21st Century," *UNESCO World Philosophy Day* (public lecture), University of Delaware, November 2017

"How to be a Relativistic Spacetime State Realist," Philosophy of Science Working Group, University of Michigan, February 2017

"Equivalence, Structure, and Realism," Philosophy Department Brown Bag Talk, University of Delaware, December 2016

"Physics Meets the Philosophy of Physics; or, Ornithology for Birds," *Science Café* (public lecture), University of Delaware, March 2015

"Entanglement and Ontology in QFT," Philosophy of Science Reading Group, Rutgers University, April 2015, Columbia University, February 2015

"Spacetime State Realism and the Type III Property in Algebraic QFT," Operator Algebra Seminar, University of Rome Tor Vergata, January 2015

"Noether's Theorem in Algebraic QFT," UC Irvine, May 2014

"Deciphering the Algebraic PCT Theorem," *Quantum Time Workshop*, University of Pittsburgh, March 2014

"Cosmopolitan QFT," University of Delaware, February 2014, Carnegie Mellon University, January 2014, University of Minnesota, January 2014

"The Conventionality of Parastatistics," *17th UK and European Meeting on the Foundations of Physics*, Ludwig Maximilian University, July 2013

"Modular Theory and Spacetime Structure (for Philosophers)," Philosophy of Science Working Group, University of Michigan, January 2013

Prizes, Grants, and Fellowships

General University Research Grant (\$6,000), Delaware, 2015–2017

Project: “Modular Theory and the Spin-Statistics Connection”

George Plimpton Adams Prize (for outstanding Ph.D. dissertation or senior thesis), Harvard Philosophy Department, 2008

Harvard College Research Grant (\$4,500), 2007

Teaching

Courses marked with * were conducted partially or fully online.

PHIL 105: Critical Thinking, Delaware (intro-level undergraduate, Fall 2014, 2015, 2016, 2017, 2019, 2020*, 2022, 2023)

PHIL 205: Logic, Delaware (mid-level undergraduate, Fall 2017, 2018, Spring 2019, 2020*, 2021*, 2022)

PHIL 207: Scientific Reasoning, Delaware (mid-level undergraduate inductive logic course, Spring 2015, 2016, 2018, 2020*, 2021*, 2023)

PHIL 305: 20th Century Philosophy, Delaware (advanced-level undergraduate, Spring 2015, 2016, 2018, 2019, 2020*, 2021*, 2022, 2023)

PHIL 306: Philosophy of Science, Delaware (advanced-level undergraduate, Fall 2014, 2015, 2016, 2017, 2018, 2019, 2020*, 2022, 2023 Spring 2022)

PHIL 420/620: Topics in Philosophy of Science – Particles and Fields, Delaware (advanced-level undergraduate with graduate section, Spring 2023)

PHIL 465: Causation, Delaware (senior seminar, Fall 2018)

PHIL 465: Geometry, Ontology, and Spacetime, Delaware (senior seminar, Fall 2015)

PHI 201: Introductory Logic, Princeton (intro-level undergraduate, AI for Hans Halvorson, Spring 2012)

PHI 203: Introduction to Metaphysics and Epistemology, Princeton (intro-level undergraduate, AI for Gideon Rosen, Fall 2010)

Advising

Undergraduate Independent Study (*PHIL 366*): Sunil Narayan (Summer 2022), Thomas Haller (Spring 2022), Marten Zelluk (Fall 2020), Cathleen Fuller (Spring 2018), Nicholas Pinti (Fall 2017), William Ammerman (Summer 2017)

Undergraduate Research Program Summer Fellows: Margrette Gress (Summer 2021)

Graduate Independent Study (*PHIL 666*): Gavin Gibson (Spring 2020), Phat Le (Fall 2017)

Senior Theses: Kaleb Moten (Fall 2018-Spring 2019, Philosophy, second reader), Jacob Morales (Fall 2017, Philosophy, second reader)

Master’s Theses: Phat Le (Winter 2018-Spring 2018, Studio Art, outside reader)

Teaching Assistants (*PHIL 205*): Dominic Vastano (Spring 2020), Caleb Owens (Spring 2019), James Williams (Fall 2018), Jacob Morales (Fall 2017)

Service

Member: *American Philosophical Association, Philosophy of Science Association, European Philosophy of Science Association, Philosophy of Physics Society*

Referee: *The British Journal for the Philosophy of Science, Erkenntnis, European Journal for Philosophy of Science, Foundations of Physics, Noûs, Philosophical Studies, Philosophy of Physics, Philosophy of Science, Studies in the History and Philosophy of Modern Physics, Synthese*

Reviewer: *2022 Philosophy of Science Association Biennial Meeting (Program Committee), IPP Conference on the Mathematical and Conceptual Foundations of Physics, Princeton-Rutgers Graduate Conference, CRNAP Graduate Student Conference*

Board Member, Greater Philadelphia Philosophy Consortium, 2016–present (Chair 2023–present, Vice Chair 2022–2023)

Co-Organizer, GPPC/CHSTM History and Philosophy of Science Reading Group, 2019–present

Senator, University Faculty Senate, Delaware, 2022–present

Philosophy Department Undergraduate Committee, Delaware, 2014–present (Chair 2016–2020)

Philosophy Department Chair Search Committee, Delaware, 2018

Philosophy Department Advisory Committee, Delaware, 2015–2017

Philosophy Department Library Liason, Delaware, 2014–2016

Philosophy Department Graduate Student Climate Committee, Princeton, 2011–2013

Philosophy Department Graduate Student Representative, Princeton, 2010–2011

References

David Baker · djbaker@umich.edu

John Burgess · jburgess@princeton.edu

Hans Halvorson · hhalvors@princeton.edu

Laura Ruetsche · ruetsche@umich.edu