

Thomas Pashby

Department of Philosophy
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EMPLOYMENT **University of Chicago** (2016–)

Assistant Professor
Department of Philosophy
Core Faculty Member
Stevanovich Institute on the Formation of Knowledge

University of Southern California (2014–2016)
Provost’s Postdoctoral Scholar in the Humanities
Department of Philosophy

EDUCATION **University of Pittsburgh** (2008–2014)

PhD History and Philosophy of Science
MA Philosophy

University of Bristol, U.K. (2000–2005)

MSci Physics and Philosophy with First-Class Joint Honours
Thesis: *Relational Interpretations of Quantum Mechanics*
Advisor: James Ladyman. Reader: Steven French (Leeds)

AREAS OF
SPECIALIZATION Philosophy of Physics, Philosophy of Science, Metaphysics

AREAS OF
COMPETENCE History of Philosophy, History of Science

DISSERTATION *Time and the Foundations of Quantum Mechanics* (University of Pittsburgh)

Committee Chairs: John Earman
 John D. Norton

Committee Members: Robert Batterman, Department of Philosophy
 Gordon Belot, University of Michigan
 Giovanni Valente, Department of Philosophy

My dissertation investigates the role that time plays within the formalism and interpretation of quantum theory, and contends that the need to accommodate temporal processes requires a novel account of time and quantum ontology. In particular, I propose a reinterpretation of the theory that allows for predictions of the time of an event in terms of the objective (but indeterministic) occurrence of successive events at definite times. The event-based ontology that results has an important antecedent in Russell’s *Analysis of Matter*, and suggests a Leibnizian understanding of time as a relational ordering of occurrent events.

PUBLICATIONS “At What Time Does a Quantum Experiment Have a Result?” (2017) in *Time in Physics* (Eds. Renner & Stupar), Birkhäuser: 141–160.

"How *Do* Things Persist? Location Relations in Physics and the Metaphysics of Persistence." (2016). *dialetica*, Vol. 70, No. 3: 269–309.

"Time and Quantum Theory: A History and a Prospectus." (2015). *Studies in History and Philosophy of Modern Physics*, Vol. 52: 24–38.

"Reply to Fleming: Symmetries, Observables, and the Occurrence of Events." (2015). *Studies in History and Philosophy of Modern Physics*, Vol. 52: 44–47.

"Taking Times Out: Tense Logic as a Theory of Time" (2015). *Studies in History and Philosophy of Modern Physics*, Vol. 50: 13–18.

"Do Quantum Objects Have Temporal Parts?" (2013). *Philosophy of Science*, Vol. 80, No. 5: 1137–1147.

"Dirac's Prediction of the Positron: A Case Study for the Current Realism Debate" (2012). *Perspectives on Science*, Vol. 20, No. 4: 440–475.

SUBMITTED
PAPERS

"Temporal Indeterminism and the Quantum Dome" *Studies in History and Philosophy of Science Part A* (under review)

"Sensible Quantum Experiences: Encounters with Stein's Philosophy of Quantum Mechanics" *Studies in History and Philosophy of Modern Physics* (revise and resubmit)

MANUSCRIPTS IN
PREPARATION

"On Aristotle's Theory of Time"

"How Dirac Found His Electron Equation"

"Quantum Mechanics for Event Ontologists"

"Quantum Non-Locality, Counterfactuals and Possible Worlds"

"Stein's Schematized Observer in a Russellian Key"

"Towards a Resolution of the Problem of Relativistic Localization"

"Understanding Russell's Response to Newman"

"Value in Whitehead's Philosophy of Nature"

INVITED TALKS

"Locality, Modality and Realism." Theoretical Philosophy Workshop, University of Chicago. May 2019.

"How Dirac Found His Electron Equation." University of Bristol, Bristol, UK. June 2018.

"On Aristotle's Theory of Time." University of Vermont, Burlington, VT. April 2018.

"Stein's Schematized Observer in a Russellian Key." History of Human Sciences Workshop, University of Chicago. October 2017.

"'On the present state of the philosophy of quantum mathematics', 35 years later." The Philosophy of Howard Stein. Franke Institute, Chicago, IL. June 2017.

"On time and chance (and quantum mechanics)." Franke Institute, Chicago, IL. April 2017.

"Digitizing Minkowski Spacetime." Harvard, Boston, MA. April 2017.

- "How (best) to be Leibnizian about (space-)time." Workshop for Katherine Brading. Notre Dame, South Bend, IN. March 2017.
- "Geometrical Understanding in Dirac's Discovery of the Electron Equation." California Institute of Technology, Pasadena, CA. May 2016.
- "At What Time Does a Quantum Experiment Have a Result?" Workshop on Time in Physics. ETH Zurich, Switzerland. September 2015.
- "It's About Time: How to Solve the Measurement Problem Without Really Trying."
 - University of Bristol, U.K. July 2015.
 - London School of Economics, U.K. June 2015.
 - University of Oxford, U.K. June 2015.
- "Schrödinger's Cat, Event Times, and Quantum Logic." Institute for Logic, Language and Computation, University of Amsterdam, Netherlands. June 2015.
- "Saving Schrödinger's Cat: It's About Time (Not Measurement)." University of Southern California, Los Angeles, CA. January 2015.
- "On Meyer's *The Nature of Time*: Tense Primitivism, Relationism, and Physics." Southern California Philosophy of Physics Reading Group, University of California, Irvine, CA. December 2014.
- "Structural Preservation Through Theory Change: The Case of Dirac's Electron Equation." 'Testing Structural Realism,' Case Western Reserve University, Cleveland, OH. June 2014.
- "Against Dogma: Locality, Conditionalization, and Collapse in Relativistic Quantum Mechanics." Munich Center for Mathematical Philosophy, Germany. May 2014.
- "Quantum Mechanics in Time and Space." University of Minnesota, Minneapolis, MN. February 2014.
- "Making Things Happen: Quantum Mechanics as a Theory of Events." Munich Center for Mathematical Philosophy, Germany. July 2013.
- "Time and Quantum Theory: A History and A Prospectus." 'Workshop on Cosmology and Time,' Penn State University. State College, PA. May 2013.
- "Time and Quantum Mechanics: Reconsidering the Foundations of Ordinary QM." University of California, San Diego, CA. June 2012.
- "The Quantum Mechanics of Perduring Objects." University of Bristol, U.K. February 2012.
- "The Problem of Time in Quantum Mechanics." University of Michigan, Ann Arbor, MI. September 2011.

CONFERENCE
PRESENTATIONS

“Understanding Russell’s Response to Newman.”

- APA Pacific Division Meeting. San Francisco, CA. March 2016.
- European Philosophy of Science Association. University of Dusseldorf, Germany. September 2015.

“Making Time for Quantum Gravity” Time in Quantum Gravity. University of California, San Diego, CA. March 2015.

“Quantum Mechanics for Event Ontologists.”

- Philosophy of Science Association. Chicago, IL. November 2014.
- Society for Exact Philosophy. California Institute of Technology, Pasadena, CA. June 2014.

“Introducing Temporally Extended Quantum Theory.”

- ‘Quantum Time,’ Center for Philosophy of Science, Pittsburgh, PA. March 2014.
- Irvine-Pittsburgh-Princeton Conference on the Mathematical and Conceptual Foundations of Physics. Irvine, CA. March 2014.

“(No) Time for Quantum Theory?” Seminar on the Philosophical Foundations of Quantum Gravity. University of Illinois, Chicago, IL. September 2013.

“Towards a Resolution of the Problem of Relativistic Localization.”

- British Society for Philosophy of Science. Exeter, U.K. July 2013.
- Irvine-Pittsburgh-Princeton Conference on the Mathematical and Conceptual Foundations of Physics. Pittsburgh, PA. April 2013.

“Do Quantum Objects Have Temporal Parts?”

- Philosophy of Science Association. San Diego, CA. November 2012.
- University of Western Ontario Graduate Conference. London, ON. May 2012.

“Dirac’s Prediction of the Anti-Electron: Theory, Interactions and Arguments”
Continuity and Discontinuity in the Physical Sciences. American Institute of Physics, College Park, MD. July 2011.

“Realism, Instrumentalism and Structuralism in Dirac’s Prediction of the Positron”
Integrated History and Philosophy of Science (&HPS3), University of Indiana, Bloomington, IN. September 2010.

“What is Really Wrong with Relational Quantum Mechanics?”

- British Society for Philosophy of Science. Dublin, Ireland. July 2010.
- U.K. & European Foundations of Physics. Aberdeen, U.K. June 2010.

“Projective Geometry and the Origins of the Dirac Equation”

- History of Science Society. Montreal, QC. November 2010.
- History of Quantum Physics (HQ3). Berlin, Germany. June 2010.

AWARDS
AND GRANTS

(2019-20) SIFK Seed Grant for project ‘Computer-Aided Philosophical Experiences’
(2018) Benjamin Meaker Visiting Professorship (short-term), *University of Bristol*.
(2014–16) Provost’s Postdoc in the Humanities, *University of Southern California*.
(2014–16) (Occasional) Visitor, *Institute for Advanced Study, Princeton*.

(May 2014) Visiting Scholar (funded position), *Ludwig-Maximilians Universität*, Munich.
(2013) Graduate Speaker Travel Award, *University of Illinois*.
(2012) Graduate Speaker Travel Award, *Philosophy of Science Association*.
(2011) Wesley Salmon Fund Travel Grant, *University of Pittsburgh*.

TEACHING
EXPERIENCE

University of Chicago

- The Development of Whitehead's Philosophy of Nature (PHIL 55100). Graduate Seminar.
- The Philosophy of Howard Stein (PHIL 58108). Graduate Seminar.
- Russell's Philosophy of Science in Context (PHIL 54410). Graduate Seminar.
- Intro. to the Philosophy of Quantum Mechanics (PHIL 32/22709). Mixed Undergraduate/Graduate.
- Intro. to Philosophy of Science (PHIL 22000/32000). Mixed Undergraduate/Graduate.
- Elementary Logic (PHIL 30/20100). Mixed Undergraduate/Graduate.
- Philosophical Perspectives I/II (HUMA 11600). Undergraduate Humanities Core

University of Southern California

- Science and Rationality (PHIL 385): Spring 2015.
- Conceptions of Space from Zeno to Einstein (ARLT 100): Fall 2014, Spring 2016.

University of Pittsburgh

- Space, Time, Matter (HPS 0545): Fall 2012.
- Problem Solving (HPS 0621): Spring 2011, Summer 2013.
- As teaching assistant:
 - Mind and Medicine: Spring 2013.
 - Magic, Medicine and Science: Spring 2010.
 - Morality and Medicine: Fall 2009.

SERVICE

Referee Service

Analysis, British Journal for Philosophy of Science, European Journal for Philosophy of Science, Foundations of Physics, Internet Encyclopedia of Philosophy, Mathematics, Philosophy of Science, Studies in History and Philosophy of Modern Physics, Synthese, Topoi.

Open Access Support Officer

PhilSci-Archive Managing Board

Online

Sept. 2014–Sept. 2020

The PhilSci-Archive provides a free preprint repository for the philosophy of science community. Aside from the usual responsibilities of a board member, I am responsible for liaising with open access journals.

Organizer

Midwest Summer School in Philosophy of Physics

Stevanovich Institute on the Formation of Knowledge

July 2018

Local organizer for this summer school involving 30 students and 10 lecturers. Gave lecture on the observer in quantum mechanics.

Conference Organizer

'The Philosophy of Howard Stein'

Franke Institute for the Humanities

June 2017

Local organizer for this conference celebrating the work of Howard Stein. Responsibilities included: securing funding, budgeting, selection of speakers, hotel, transportation and catering liaison.

Conference Organizer Center for Philosophy of Science
'Quantum Time' March 2014
Joint responsibility (with Giovanni Valente and Bryan Roberts) for this Pittsburgh workshop on the foundations of quantum theory. Responsibilities included budgeting, selection of speakers, and review of submitted papers.

Archive Manager Center for Philosophy of Science
PhilSci-Archive May 2013–August 2014
The PhilSci-Archive provides a preprint server for philosophers of science. I was responsible for daily maintenance tasks including vetting submissions and communicating with users, reporting to the Archive Board.

Organizer and Webmaster University of Pittsburgh
Work in Progress Talks Sept. 2011–April 2013
The Work in Progress (WIP) talks provide a weekly opportunity for graduate students to present their work to their peers. I was jointly responsible for running the meetings and solely responsible for maintaining the WIP website.

Conference Organizer Pittsburgh, PA
Pitt-CMU Graduate Conference March 2009, 2010
I was one of six organizers for the Pitt-CMU graduate philosophy conference responsible for reviewing submitted papers, managing Easychair submissions, communicating with invited speakers, and other administrative tasks.

NON-ACADEMIC
EMPLOYMENT

Design Engineer Cambridge, U.K.
TT Electronics Ltd. September 2005–December 2007
I worked for an internal engineering consultancy designing electronic position sensors for the automotive industry, for clients such as BMW, GM and VW. I was responsible for the design and testing of novel sensor prototypes. Other duties included: project management; development of new design, testing and simulation systems; troubleshooting of manufacturing problems.

Trainee Engineer Cambridge, U.K.
Polatis Ltd. September 2000–August 2001; July 2002, 2003
Polatis is an optical switch manufacturer founded in 2000. I was involved with (and occasionally solely responsible for) the mechanical design, optical modeling, and manufacture of prototype switches. Originally employed through the Year in Industry scheme, I returned to Polatis for summer work during my undergraduate degree.