

Armond Duwell

Curriculum Vitae 4/2022

Philosophy Department
University of Montana
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Education

Ph.D. in History and Philosophy of Science. University of Pittsburgh. 2004.

Thesis How to teach an old dog new tricks: quantum information, quantum computation, and the philosophy of physics.

Bachelor of Science in Physics. Georgia Institute of Technology. 1998.

AOS: Philosophy of Physics, Philosophy of Science, Philosophy of Computation

AOC: Epistemology

Appointments

2016-present **Professor.** Department of Philosophy. University of Montana.

2011-Fall **Visiting Fellow.** Center for Philosophy of Science. University of Pittsburgh.

2010-2016 **Associate Professor.** Department of Philosophy. University of Montana.

2006-2010 **Assistant Professor.** Department of Philosophy. University of Montana.

2005-2006 **Wissenschaftlicher Mitarbeiter.** Department of Philosophy. University of Erfurt.

2004-2005 **Postdoctoral Fellow.** Center for Junior Research Fellows. Probability, Philosophy, and Modeling Research Group. University of Konstanz.

Publications

- Duwell, Armond (2021). *Physics and Computation*. Elements in Philosophy of Physics. Cambridge: Cambridge University Press.
- (2020). “Understanding quantum phenomena and quantum theory”. In: *Studies in History and Philosophy of Modern Physics* 72, pp. 278–291.
- (2019). “What is quantum information?” In: *Philosophy Compass* 14.4, e12572.
- (2018). “How to make orthogonal positions parallel: Revisiting the quantum parallelism thesis”. In: *Physical Perspectives on Computation, Computational Perspectives on Physics*. Ed. by Michael E. Cuffaro and Samuel Fletcher. United Kingdom: Cambridge University Press.
- (2017b). “Representation, Interpretation, and Theories of Information”. In: *What is Quantum Information?* Ed. by Olimpia Lombardi et al. Cambridge University Press, pp. 9–34.
- (2017a). “Exploring the Frontiers of Computation: Measurement Based Quantum Computers and the Mechanistic View of Computation”. In: *Turing 100: Philosophical Explorations of the Legacy of Alan Turing*. Ed. by A. Bokulich and J. Floyd. Vol. 324. Boston Studies in the Philosophy and History of Science. Springer, pp. 219–232.
- (2016). “Bananaworld: Quantum Mechanics for Primates”. In: *International Studies in the Philosophy of Science* 30.3, pp. 309–311.
- (2014). “Thinking Carefully About Quantum Information: A Review of Timpson’s *Quantum Information Theory and the Foundations of Quantum Mechanics*”. In: *Metascience* 23, pp. 485–488.
- (2013). “Quantum Information and the Interpretation of Quantum Mechanics”. In: *La philosophie de la physique*. Ed. by Soazig Le Bihan. Paris: Vuibert Editions.
- (2011). “Uncomfortable bedfellows: Objective quantum Bayesianism and the von Neumann-Lüders projection postulate”. In: *Studies in History and Philosophy of Modern Physics* 42.3, pp. 167–175.
- (2010). “Schumacher information and the philosophy of physics”. In: *Philosophy of Quantum Information and Entanglement*. Ed. by A. Bokulich and G. Jaegger. Cambridge University Press.
- (2008). “Quantum information *does* exist”. In: *Studies in History and Philosophy of Modern Physics* 39.1, pp. 195–216.
- (2007a). “Reconceiving quantum theory in terms of information theoretic constraints”. In: *Studies in History and Philosophy of Modern Physics* 38.1, pp. 181–201.
- (2007b). “The many-worlds interpretation and quantum computation”. In: *Philosophy of Science* 74.5, pp. 1007–1018.

- Duwell, Armond (2003a). “Book Review: *The physics of quantum information*”. In: *Studies in History and Philosophy of Modern Physics* 34.2, pp. 331–334.
- (2003b). “Quantum Information does not exist”. In: *Studies in History and Philosophy of Modern Physics* 34.3, pp. 479–499.
- (2000). “Explaining information transfer in quantum teleportation”. In: *Philosophy of Science* 68.3, pp. 288–300.

Professional Service

Program Committee for the 19th U.K. and European Meeting on the Foundations of Physics
 Referee for *Annals of Science*
 Referee for *British Journal of Philosophy of Science*
 Referee for *Cambridge University Press*
 Referee for *Canadian Philosophical Association*
 Referee for *Dialectica*
 Referee for *European Journal for Philosophy of Science*
 Referee for *Foundations of Physics*
 Referee for *Foundations of Physics Letters*
 Referee for *Foundations of Science*
 Referee for *National Science Foundation*
 Referee for *Oxford University Press*
 Referee for *Philosophers Imprint*
 Referee for *Philosophy and Technology*
 Referee for *Philosophy of Science*
 Referee for *Philosophy, Science, and Law*
 Referee for *Springer*
 Referee for *Studies in History and Philosophy of Modern Physics*
 Referee for *Studies in History and Philosophy of Science*
 Referee for *Synthese*

Teaching Competence

Graduate level.	Philosophy of Physics, Philosophy of Science; Philosophy of Computation
Advanced undergraduate.	Quantum Information and Computation; Philosophy of Biology; Philosophy of Probability; Symbolic Logic; Inductive Logic; Epistemology; Metaphysics; Philosophy of Language, Philosophy of Mind; Medical Ethics
Introductory.	Introduction to Philosophy; Critical Thinking; Ethics; History and Philosophy of Science

Teaching Experience

Graduate level.	Representation and Realism; Philosophy of Biology; Philosophy of Science; Philosophy of Ecology
Advanced undergraduate.	Philosophy of Science; Metaphysics; Epistemology; Philosophy of Language; Philosophy of Mind; Medical Ethics
Introductory.	Ethics; History and Philosophy of Science; Medical Ethics; Deductive Logic; Inductive Logic; Principles of Scientific Reasoning; Problem Solving: How Science Works (Intro to quantitative reasoning)

Invited Talks

Unification, explanation, and understanding: The modal view. Scientific Understanding and Representation Workshop. Atlanta. 2020.

A defense of the deflationary view of information. Seven Pines Symposium: Quantum computers: imminent or illusion? Stillwater. 2019

Unification, explanation, and understanding: The modal view'. American Philosophical Association Central Division Meeting. Denver. 2019.

Modal understanding: The real deal. Philosophy of Science Association Biennial Meeting. Seattle. 2018.

Modal Understanding: The real deal. Explanation and Understanding Workshop. Ghent. 2018.

Modal understanding: The real deal. Montana State University March, 2018.

Understanding phenomena, understanding theory, and theoretical understanding of phenomena. Philosophy Forum. University of Montana. March 2017.

Understanding quantum phenomena and quantum theory. Conference: Information-theoretic interpretations of quantum mechanics. London, ON. June 2016.

Representation, interpretation, and theories of information. Université de Paris-Sorbonne. January 2016.

Representation, interpretation, and theories of information. Conference: What is quantum information? Buenos Aires. May 2015.

Do broken symmetries need symmetry breakers? Philosophy Forum. University of Montana. October 2014.

One over many: one-world, no-collapse, no-extra values quantum mechanics. Physics Department. University of Montana. April 2012.

One over many: one-world, no-collapse, no-extra values quantum mechanics. Rotman Institute of Philosophy. Western Ontario University. March 2012.

One over many: one-world, no-collapse, no-extra values quantum mechanics. Philosophy Forum. University of Montana. February 2012.

Realism and regularities. Philosophy Forum. University of Montana. February 2012.

Benign convergent realism. Center for Philosophy of Science. University of Pittsburgh. September 2011.

Realism and regularities. Philosophy Forum. University of Montana. February 2012.

Benign convergent realism. Center for Philosophy of Science. University of Pittsburgh. September 2011.

Benign convergent realism. Institut d'Histoire et de Philosophie des Sciences et des Techniques, Paris. May 2011.

Uncomfortable bedfellows: Objective quantum Bayesianism and the von Neumann-Lüders projection postulate. Mathematics Department. University of Montana. March 2011.

What is computation? Institut d'Histoire et de Philosophie des Sciences et des Techniques, Paris. January 2010.

What is computation? Sigma Xi Lecture. University of Montana. April 2009.

What is computation? Philosophy Forum. University of Montana. April 2009.

Explaining the success of science. Philosophy Forum. University of Montana. April 2008.

Can quantum subjectivism be justified? University of South Carolina, Columbia. February 2008.

Can quantum subjectivism be justified? University of Wisconsin, Madison. January 2008.

I gave a series of lectures on quantum computation. Institut d'Histoire et de Philosophie des Sciences et des Techniques, Paris. May 2007.

Reconceiving quantum theory from information-theoretic constraints. Center for Time. University of Sydney. October 2005.

Quantum information does exist. University of Bristol. May 2005.

Quantum information does exist. University of Leeds. May 2005.

Quantum information does exist. L.S.E. May 2005.

Quantum information does exist. Philosophisches Institut Lehrstuhl für Theoretische Philosophie. Universität Düsseldorf. May 2005.

Is information physical? College of William and Mary. February 2005.

How to save quantum computing from interpretations of quantum mechanics: Explaining quantum speedup. Philosophy, Probability, and Physics workshop. Institut d'Histoire et de Philosophie des Sciences et des Techniques, Paris. December 2004

Invited participant Seven Pines Symposium: Quantum Information and Quantum Computation, Stillwater, MN, May 2004.

How to save quantum computing from interpretations of quantum mechanics. University of Calgary. April 2004.

Conference Presentations

Understanding, explanation and unification: The modal view. Scientific Understanding and Representation Workshop. Atlanta. April 2020.

Understanding, explanation, and unification: The modal view. APA Central. Denver. February 2019

Modal understanding: The real deal. Philosophy of Science Association meeting. Seattle. November 2018

Modal understanding: The real deal. Workshop: Explanation and Understanding. Ghent. May 2018.

How to make orthogonal positions parallel: revisiting the quantum parallelism thesis. EPSA 2015. Düsseldorf. October 2015.

Scientific understanding: a modal view. Co-presentation with Soazig Le Bihan. PSA 2014. Chicago. November 2014.

Can Pitowsky's Bayesianism be Justified? PSA 2010. Montreal. November 2010.

Quantum computing and the many worlds interpretation. PSA 2006. Vancouver. November 2006.

Sorting the subjective from the objective: remarks on Fuchs. Special session: The Epistemological and Logical Lessons of Quantum Information Theory. European Analytic Philosophy Conference. Universidade de Lisboa. September 2005.

Sorting the subjective from objective: remarks on Fuchs. Workshop: Being Bayesian in a Quantum World. Universität Konstanz. August 2005.

Commentator, Paris/London/Konstanz Workshop in History and Philosophy of Science: Formal vs. Historical Accounts of Scientific Theory Change. Université Paris (Sorbonne). December 2004.

Panel discussant. Quantum Information Theory and the Foundations of Quantum Mechanics: Is Information the way Forward? PSA 2004. Austin. November 2004.

Quantum information does not exist. 12th Annual UK Conference on Foundations of Physics. University of Leeds. September 2003.

Explaining information transfer in quantum teleportation. PSA 2000. Vancouver. November 2000.

Scholarships and Grants

Visiting Scholar Grant: University of Sydney (2005)

NSF Travel Grant: PSA (2004)

NSF Young Scholar Travel Grant: International Quantum Structures Conference (2004)

Andrew Mellon Scholarship for graduate study (2003-2004)

Edward and Emma Mae Dobroski Fellowship (2002-2003)

University of Montana Service

2015-present Fundraising coordinator.
2015-present Outreach officer.
2014-present Webmaster.
2012-present Union Representative.
2006-present Faculty Evaluation Committee.
2013 Ethics Statement Committee.
2006-2011 Pantzer award committee.
2009-2011 Faculty Senate.
2007-2011 Director of Graduate Studies.

References

Guido Bacciagaluppi

Universiteit Utrecht

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Alisa Bokulich

Boston University

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Wayne Myrvold

Western University

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