

# Jill North

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## EDUCATION

Ph.D., Philosophy, Rutgers 2004  
Dissertation: “Time and Probability in an Asymmetric Universe”

B.A., Physics and Philosophy, Yale 1997  
*Summa cum laude*, Phi Beta Kappa, with Distinction in the Major

## EMPLOYMENT

2021–present Professor, Rutgers University, Department of Philosophy

2015–2021 Associate Professor, Rutgers University, Department of Philosophy

2011–2015 Associate Professor, Cornell University, Sage School of Philosophy

2006–2011 Assistant Professor, Yale University, Department of Philosophy  
Secondary appointment in Physics; affiliated faculty in History of Science and  
Medicine and in Cognitive Science

2004–2006 Bersoff Faculty Fellow, New York University, Department of Philosophy

1997–1998 High school math and physics teacher, Menaul School, New Mexico

## AREA OF SPECIALIZATION

Philosophy of physics

## AREAS OF COMPETENCE

Metaphysics, philosophy of science

## BOOK

*Physics, Structure, and Reality* (2021). Oxford: Oxford University Press.

Reviews:

David Albert, *Notre Dame Philosophical Reviews* (September 2022)

Thomas William Barrett, *Philosophy of Science* (2022, vol. 89, pp. 644–53)

Caspar Jacobs, *British Journal for the Philosophy of Science Review of Books* (2022)

Author-Meets-Critics session (critics David Baker, Wayne Myrvold, Laura Ruetsche), Eastern Division Meeting of the American Philosophical Association (held online), January 2022 ([http://philsci-archive.pitt.edu/21675/1/NorthPSR\\_AMC.pdf](http://philsci-archive.pitt.edu/21675/1/NorthPSR_AMC.pdf))

## PAPERS

“Formulations of Classical Mechanics” (2022), *The Routledge Companion to Philosophy of Physics*, eds. Eleanor Knox and Alastair Wilson. New York: Routledge, 21–32.

“A New Approach to the Relational-Substantival Debate” (2018), *Oxford Studies in Metaphysics* 11, 3–43.

“The Structure of a Quantum World” (2013), *The Wave Function: Essays on the Metaphysics of Quantum Mechanics*, eds. Alyssa Ney and David Albert. Oxford: Oxford University Press, 184–202.

“Time in Thermodynamics” (2011), *The Oxford Handbook of Philosophy of Time*, ed. Craig Callender. Oxford: Oxford University Press, 312–350.

“An Empirical Approach to Symmetry and Probability” (2010), *Studies in History and Philosophy of Modern Physics* 41, 27–40.

“The ‘Structure’ of Physics: A Case Study” (2009), *Journal of Philosophy* 106, 57–88.

“Two Views on Time Reversal” (2008), *Philosophy of Science* 75, 201–223.

“Understanding the Time-Asymmetry of Radiation” (2003), *Philosophy of Science (Proceedings)* 70, 1086–1097.

“What is the Problem about the Time-Asymmetry of Thermodynamics?—A Reply to Price” (2002), *British Journal for the Philosophy of Science* 53, 121–136.

## IN PROGRESS

“Paving the Way for A Middle Way on Theoretical Equivalence”

“Perspicuous Representation in Physics”

“The Complex Structure of Quantum Mechanics”

## BOOK REVIEWS

Gordon Belot, *Geometric Possibility*. *The Philosophical Review* 122, 2013, 522–525.

Max Jammer, *Concepts of Simultaneity: From Antiquity to Einstein and Beyond*. *American Scientist* 96, 2008, 69–70.

Mathias Frisch, *Inconsistency, Asymmetry and Non-Locality: A Philosophical Investigation of Classical Electrodynamics*. *Philosophy of Science* 74, 2007, 555–558.

#### HONORS AND AWARDS

National Science Foundation Science and Technology Studies Scholars Award (award no. 2419293; \$177,330 for project “The Complex Structure of Quantum Mechanics”), 2024–2025

National Science Foundation Science and Technology Studies Scholars Award (award no. 1430435; \$200,714 for project “The Structure of Spacetime: A New Approach to the Spacetime Ontology Debate”), 2014–2016

American Association of University Women Dissertation Fellowship, 2003

Andrew W. Mellon Foundation Fellowship in Humanistic Studies, 1998

Research Experience for Undergraduates NSF summer program, 1995 (with Dr. Carl Wieman, Joint Institute for Laboratory Astrophysics, Boulder, CO)

Robert C. Byrd Honors Scholarship, 1993–1997

#### PRESENTATIONS

##### UPCOMING

“Losing an  $i$ : On the Naturalness of Complex Numbers for Quantum Mechanics,” Symposium on Complex Numbers in Quantum Theory (co-presenters David Baker, Jacob Barandes, and Ricardo Karam), Philosophy of Science Association Biennial Meeting, New Orleans, LA, November 2024.

##### PERSPICUOUS REPRESENTATION

“Perspicuous Representation in Physics,” The LanCog Summer Metaphysics Workshop, University of Lisbon, Lisbon, Portugal, July 2024.

“On Perspicuous Representation in Physics,” Reed College, Department of Philosophy and Department of Physics colloquium, Portland, OR, March, 2024.

“On the Idea of Perspicuous Representations,” Symposium on Perspicuous Representation in Physics (with co-presenters Neil Dewar and Caspar Jacobs), Foundations 2023: the 21st European Conference on Foundations of Physics, Bristol, England, July 2023.

“On the Idea of Perspicuous Representations,” Symposium on Perspicuous Repre-

sensation in Physics (with co-presenters Neil Dewar, Henrique Gomes, and Caspar Jacobs), Annual Conference of the British Society for the Philosophy of Science, Bristol, England, July 2023.

“On the Idea of Perspicuous Representations (and Symmetries),” Symmetry Workshop organized by Valeriya Chasova (online), June 2023.

#### MIDDLE WAY ON EQUIVALENCE

“A Middle Way on Theoretical Equivalence,” Lisbon Philosophy of Physics Seminar, University of Lisbon Centre for Philosophy (online), November 2022.

“(Paving the Way for) A Middle Way on Theoretical Equivalence,” Symposium on Equivalence, Reality, and Structure in Physics (with co-presenters Clara Bradley, Neil Dewar, and Isaac Wilhelm), Philosophy of Science Association Biennial Meeting, Pittsburgh, PA, November 2022.

#### QUANTUM METAPHYSICS

“Finding Particles in the Wavefunction,” workshop on Alyssa Ney’s *The World in the Wave Function*, University of Geneva (online), June 2021.

#### THEORETICAL EQUIVALENCE

“On the Equivalence of Physical Theories,” workshop on Theoretical Equivalence and Beyond, University of Geneva (online), December 2021.

“Metaphysics and Equivalence,” 60th annual Boston Colloquium for Philosophy of Science, Boston, MA, February 2020.

“Metaphysics and Equivalence,” California Metaphysics Conference, University of Southern California, Los Angeles, CA, January 2020.

“Metaphysics and Equivalence,” Symposium on Equivalent Theories in Physics, American Philosophical Association Pacific Division Meeting, Vancouver, Canada, April 2019.

“Metaphysics and Equivalence,” 11th annual Auburn Philosophy Conference, on Representation, Idealization, and Explanation in Science, Auburn University, Auburn, AL, April 2019.

#### DIRECTION OF TIME

“Explaining the Direction of Time: A Puzzle in the Philosophy of Physics,” Rutgers Summer Institute for Diversity in Philosophy, New Brunswick, NJ, July 2023.

“Explaining the Direction of Time,” Rutgers Undergraduate Philosophy Club, New Brunswick, NJ, October 2018.

“Break It Down for Me: The Direction of Time,” Rutgers Philosophy Department, New Brunswick, NJ, October 2018.

“Explaining the Direction of Time: A Puzzle in the Philosophy of Physics,” Wing Chun Wong Lecture, Towson University, Towson, MD, October 2017.

“Explaining the Direction of Time,” Sir Thomas More Lecture to the undergraduate conservative party, Yale, New Haven, CT, January 2010.

“Doing Time: Conversations about Time and How we Manipulate it to Understand the World,” presentation and panel discussion on the nature of time, Yale, New Haven, CT 2010.

“Explaining the Direction of Time, or: Why Does Your Popsicle Melt on a Hot Day?”, Connecticut College Physics Department colloquium, New London, CT, February 2009.

#### STRUCTURE OF SPACETIME

“Spatiotemporal Structure and the Relational-Substantival Debate,” Conference on The Foundation of Reality: Fundamentality, Space, and Time, Oxford University, March 2017.

“Spatiotemporal Structure and the Relational-Substantival Debate,” University of Massachusetts-Amherst Philosophy Department colloquium, Amherst, MA, February 2017.

“The Structure of Spacetime: A New Approach to the Spacetime Ontology Debate,” Physics as Metaphysics lecture series, Brown University, Providence, RI, November 2015.

“The Structure of Spacetime: A New Approach to the Spacetime Ontology Debate,” co-sponsored by The Sydney M. Edelstein Center for History and Philosophy of Science, Technology, and Medicine at The Hebrew University of Jerusalem and the Van Leer Jerusalem Institute, Jerusalem, Israel, October 2015.

“The Structure of Spacetime: A New Approach to the Spacetime Ontology Debate,” Bar-Hillel Colloquium for the History, Philosophy and Sociology of Science, The Cohn Institute for the History and Philosophy of Science and Ideas at Tel Aviv University (co-sponsored by the Edelstein Center and Van Leer Institute in Jerusalem), Tel Aviv, Israel, October 2015.

“The Structure of Spacetime: A New Approach to the Spacetime Ontology Debate,” 49th Chapel Hill Colloquium in Philosophy, University of North Carolina at Chapel Hill, NC, October 2015.

“The Structure of Spacetime: A New Approach to the Spacetime Ontology Debate,” Philosophy of Science Association Biennial Meeting, Chicago, IL, November 2014.

“The Structure of Spacetime: A New Approach to the Spacetime Ontology Debate,” keynote address, annual Graduate Philosophy Conference, University of Illinois, Urbana-Champaign, March 2014.

“The Structure of Spacetime,” annual Conference on Philosophy of Physics, University of Western Ontario, London, Ontario, Canada, May 2013.

“The Structure of Spacetime,” University of Wisconsin-Milwaukee Department of Philosophy colloquium, Milwaukee, WI, May 2013.

“The Structure of Spacetime,” Structure in Physics conference, Rutgers University, New Brunswick, NJ, April 2013.

#### CLASSICAL MECHANICS AND THEORETICAL EQUIVALENCE

“Classical Mechanics, Structure, and the World; or: On the (Non-)Equivalence of Theories,” Conference on Equivalent Theories in Science and Metaphysics, Princeton University, Princeton, NJ, March 2015.

#### STRUCTURE OF QUANTUM MECHANICS

“The Structure of a Quantum World,” Syracuse University Department of Philosophy colloquium, Syracuse, NY, September 2012.

“The Structure of a Quantum World,” keynote lecture at Calvin College Undergraduate Philosophy Conference, Grand Rapids, MI, May 2012.

(“The Structure of a Quantum World,” accepted for the Philosophy of Science Association Biennial Meeting, 2010. Was unable to attend.)

“The Structure of a Quantum World,” Yale University Department of Philosophy Faculty lunch, New Haven, CT, May 2010.

“The Structure of a Quantum World,” American Philosophical Association Pacific Division Meeting, San Francisco, CA, March 2010.

#### STRUCTURE IN CLASSICAL MECHANICS

“The Structure of Classical Mechanics,” Cornell University Philosophy Department colloquium, Ithaca, NY, October 2009.

“The Structure of Classical Mechanics,” American Philosophical Association Pacific Division Meeting, Vancouver, Canada, April 2009.

“The Structure of Classical Mechanics,” Arizona Ontology Conference, Tucson, AZ, January 2009.

“The Structure of Classical Mechanics,” Leeds Perspectives on Ontology Conference, University of Leeds, UK, September 2008.

“The Structure of Classical Mechanics,” Mini-Workshop on the Metaphysics of Science, University of Bristol, UK, September 2008.

#### STRUCTURE OF PHYSICS

“The ‘Structure’ of Physics: A Case Study,” Bellingham Summer Philosophy Conference, University of Western Washington, Bellingham, WA, August 2007.

“The ‘Structure’ of Physics: A Case Study,” Joint Sessions of the Aristotelian Society and Mind Association, University of Bristol, Bristol, UK, July 2007.

“The ‘Structure’ of Physics: A Case Study,” American Philosophical Association Pacific Division Meeting, San Francisco, CA, April 2007.

“The ‘Structure’ of Physics: A Case Study,” Yale University Department of Philosophy Faculty lunch, New Haven, CT, October 2006.

“The ‘Structure’ of Physics: A Case Study,” University of Michigan Philosophy Department colloquium, Ann Arbor, MI, September 2006.

#### SYMMETRIC PROBABILITY

“Symmetry and Probability,” Philosophy of Science Association Biennial Meeting, Vancouver, Canada, November 2006.

“Symmetry and Probability,” Bellingham Summer Philosophy Conference, University of Western Washington, Bellingham, WA, August 2006.

“Probability and Symmetry,” University of Maryland Philosophy Department colloquium, College Park, MD, November 2005.

“Understanding Probabilities in Statistical Mechanics,” University of California, San Diego Graduate Student Conference in Philosophy of Science, La Jolla, CA, April 2003.

#### TIME REVERSAL

“Two Views on Time Reversal,” University of Rochester, Department of Physics and Department of Philosophy colloquium, Rochester, NY, April 2007.

“Two Views on Time Reversal,” American Philosophical Association Pacific Division Meeting, Portland, OR, March 2006.

#### RADIATION ASYMMETRY

(“Understanding the Time-Asymmetry of Radiation,” accepted for presentation at the Philosophy of Science Association Biennial Meeting, Milwaukee, WI, November 2002. Was unable to attend.)

“The Time-Asymmetry of Radiation and the Initial Condition of the Universe,”

University of Western Ontario 3rd Annual Graduate Conference in Philosophy of Logic, Math and Physics, London, Ontario, Canada, May 2002.

#### COMMENTS AND OTHER DISCUSSIONS

Discussion of *Tenet* movie and the direction of time, *Rutgers Today*, September 2020 (<https://www.rutgers.edu/news/rutgers-philosopher-discusses-tenet-and-direction-time>)

Panelist for “The Future of Space and Time” (with Gordon Belot, Sean Carroll, and Nick Huggett), Workshop on the Future of the Foundations of Physics, Columbia University, New York, NY, October 2018.

Moderator for panel discussion on “What Does the Future Hold for Physics: Is There a Limit to Human Knowledge?” (with physicists Vijay Balasubramanian, Eva Silverstein, and Neal Weiner), New York Academy of Sciences, New York, NY, April 2016.

Comments on Richard Healey, “Pragmatism and Fundamental Physics” and Mark Wilson, “Pragmatics’ Place at the Table: Suggestions from Multi-Scalar Science,” American Philosophical Association Pacific Division Meeting, San Francisco, CA, March 2016.

Comments on Erica Shumener, “Explaining Identity and Distinctness,” Bellingham Summer Philosophy Conference, Bellingham, WA, August 2014.

Discussion of quantum reality and the wavefunction, *Cornell Chronicle*, May 2013 (<https://news.cornell.edu/stories/2013/05/philosopher-jill-north-explores-quantum-reality>)

Comments on David John Baker, “Some Consequences of Physics for the Comparative Metaphysics of Quantity,” Carolina Metaphysics Workshop, Duck, NC, June 2012.

Comments on David Albert and Julian Barbour, “Time—from the Beginning and in the Moment,” conference on “Why is there Anything? Cosmos, Logos, and the *Why* of the Universe,” Yale University, New Haven, CT, October 2011.

Comments on Alvin Plantinga, “Religion and Science: Where the Conflict Really Lies,” panel on science and religion, Yale University, New Haven, CT, January 2010.

Comments on Mariam Thalos, “Non-Reductive Materialism without Hierarchy,” Colorado Conference on Dependence, Boulder, CO, March 2009.

Comments on Jonathan Cohen and Craig Callender, “A Better Best System Analysis of the Laws of Nature,” Bellingham Summer Philosophy Conference, Bellingham, WA, August 2008.

Comments on Thomas Hofweber, “Ontology as a Philosopher’s Project,” Inland Northwest Philosophy Conference, Boise, ID, April 2007.

Comments on Cian Dorr, “Finding Ordinary Objects in the World of Quantum



Mechanics,” Arizona Ontology Conference, Tucson, AZ, January 2007.

Comments on Barry Loewer, “Counterfactuals and the Second Law,” NYU La Pietra Conference on Causation, Florence, Italy, June 2006.

Comments on Roger White, “Epistemic Permissiveness,” Bellingham Summer Philosophy Conference, Bellingham, WA, August 2005.

Comments on L. A. Paul, “Change is Multiple Realization,” Philosophy of Time Society, American Philosophical Association Pacific Division meeting, Pasadena, CA, March 2004.

Comments on Bradley Monton, “Presentism and Time Travel,” annual meeting of the Central States Philosophical Association, Columbia, MO, October 2002.

Comments on Huw Price, “Boltzmann’s Time Bomb,” Conference on Real Time and its Quantum Roots, University of Arizona, Tucson, AZ, March 2001.

#### PROFESSIONAL SERVICE

Co-founder and co-organizer (with Elisabeth Camp and Elizabeth Harman) for workshop series Athena in Action: A Networking and Mentoring Workshop for Graduate Student Women in Philosophy, held at Princeton University in August 2014, August 2016, and June 2018; hosted online by Cornell University in June 2020; held at Rutgers University in June 2022; held at The University of Notre Dame and co-organized with Meghan Sullivan in June 2024; with workshops every other year thereafter at locations TBD

Section chair for Philosophy of Physics, 25th World Congress of Philosophy, Rome, Italy, August 2024

Program Committee, 21st European Conference on Foundations of Physics, 2023

Philosophy of physics editor for *Ergo*, 2013–present

Mentor to junior women faculty in philosophy of science through the Mentoring Initiative of the Philosophy of Science Association’s Underrepresented Philosophy of Science Scholar program, 2022

National Science Foundation grants panelist, 2018

International Advisory Board, EU-Funded project A Framework for Metaphysical Explanation in Physics run by Alastair Wilson, University of Birmingham, UK, 2018–2022

Program Committee, 19th UK and European Conference on Foundations of Physics, spring 2018

Foundational Questions Institute grants panelist, 2015

Program Committee, Philosophy of Science Association biennial meeting,

spring 2012

Guest co-editor (with Ben Bradley and Ryan Wasserman), Bellingham Summer Philosophy Conference issue of *Philosophical Studies*, 2008

Program Committee, Bellingham Summer Philosophy Conference, spring 2008

Referee work for *American Philosophical Quarterly*, *British Journal for the Philosophy of Science*, Cambridge University Press, *Erkenntnis*, *European Journal for Philosophy of Science*, Foundational Questions Institute, *International Journal of Quantum Foundations*, Israeli Science Foundation, *Mind*, National Science Foundation, *Philosophers' Imprint*, *Philosophical Studies*, *Philosophical Quarterly*, *The Philosophical Review*, *Philosophy Compass*, *Philosophy of Physics*, *Philosophy of Science*, Routledge, *Studies in History and Philosophy of Modern Physics*, *Synthese*, W. W. Norton

#### UNIVERSITY AND DEPARTMENT SERVICE

Rutgers Philosophy undergraduate curriculum committee, 2106–present

Rutgers Advisory Committee for Appointments and Promotions, 2017–2019, 2022–2024

Rutgers McNair Scholar supervisor, 2022–present

Rutgers Philosophy colloquium committee faculty advisor, 2021–present

Rutgers Philosophy climate committee faculty advisor, 2020–2021

Rutgers Philosophy graduate admissions, 2019, 2022

Cornell Philosophy graduate admissions, 2012, 2014, 2015

Cornell *Philosophical Review* book review committee, 2012–2014

Cornell ad hoc tenure committee, 2013

Co-organizer (with Karen Bennett and Erin Taylor) for A Conference Honoring Richard Boyd and Nicholas Sturgeon, Cornell, 2012

Yale Committee on Honors and Academic Standing, 2009–2011

Yale Philosophy graduate admissions, 2008, 2010

Yale Philosophy faculty lunchtime talks organizer, 2009–2010

Yale subcommittee on Science Studies