

DR. ROBERT C. BISHOP

13 June 2018

Contact Information

Physics Department
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Areas of Specialization

History and Philosophy of Science, Philosophy of Physics, Philosophy of Social Science, Philosophy of Mind and Psychology, Metaphysics, Science and Religion

Areas of Competence

Epistemology, Philosophy of Biology, History of Early Modern Philosophy, Social Theory, Philosophy of Religion and Theology

Present Appointment

Associate Professor of Physics and Philosophy, John and Madeline McIntyre Chair in Philosophy and History of Science, Department of Physics, Wheaton College, July 2007 to present.

Teaching duties: General Education courses: Origins of Modern Science (history of science from ancient Egypt through the Scientific Revolution), Ideas of Modern Science (history of science from the Scientific Revolution to the present), History of Cosmology (world history of cosmology and astronomy), Cosmology and the Good Life (First-Year questions-based liberal arts seminar), Natural Science: Foundations, Methods, Challenges (foundations and methodology of natural science), Theology and Science (historical survey of science-theology interactions, Reformation through the 19th century), Introduction to Interdisciplinary Studies Seminar (natural science, social science, historical and theological inquiry). Physics major courses: Thermodynamics (intro and upper division), Elementary Particle Physics and Cosmology, Senior Seminar (physics and the liberal arts). Average 11 contact hours of teaching per week. Directed independent studies in history of science, philosophy of biology, philosophy of physics, quantum mechanics, fluids and thermodynamics.

Natural Science Departments Coordinator, July 2010 to present.

Co-organizer of Wheaton Science Symposium on string theory and the multiverse, 26-27 March 2009.

Organized workshop on theology and cosmology at the Wheaton College Science Station, 11-15 August 2009. Co-organizer of a workshop on varieties of causation in consciousness research at Normal, IL, 18-22 November. Co-organizer of a workshop on science engaging metaphysics Wheaton College Science Station, 25-28 July 2010. Organized a symposium titled "Methodological Naturalism: Glorifying God through Science?" for the American Scientific Affiliation Annual Meeting, North Central College, Naperville, TX, 28 July - 1 August 2011. Organized a symposium titled "Exploring Theoretical and Philosophical Psychology's Ways of Knowing" for the Society for Theoretical and Philosophical Psychology Midwinter Meeting, Phoenix, AZ, 1-4 March 2018.

General Education Exploratory and Revision Committees, May 2010 to January 2014.

Career

Visiting Assistant Professor, Department of Philosophy, Rice University, July 2006 to June 2007

Teaching duties: Lower-division courses: Perspectives on Science (general philosophy of science; history of science; philosophy of biology). Upper-division courses: Epistemology; Philosophy of Biology. Graduate seminars: Determinism and Free Will. Averaged nine contact hours of teaching per

week. Directed independent study on causation in biology. Involved in the Cultural Studies of Science and Technology Reading Group.

Visiting Assistant Professor, Department of Philosophy, Texas Tech University, August 2005 to July 2006

Teaching duties: Lower-division courses: Beginning Philosophy; Introduction to Ethics. Upper-division courses: Epistemology; Great Figures: John Locke (empiricism, epistemology and political philosophy); Philosophy of Social Science. Graduate seminars: Philosophy of Mind and Psychology. Directed independent study students on metaphysics, philosophy of social science. Supervised graduate teaching assistants. Averaged twelve contact hours of teaching per week. Directed masters thesis prospectus. Directed faculty philosophy of mind reading group.

Co-organizer for the Consciousness and Free Will Panel of Amazing Light: Visions for Discovery International Symposium in honor of Nobel Laureate Charles Townes, University of California, Berkeley, 6-8 October 2005.

Junior Lecturer, Faculty of Philosophy, University of Oxford, October 2004 to August 2005. Fellow of Wolfson College.

Teaching duties: Undergraduate courses: Philosophy of Science; Historical Background to the Leibniz-Clarke Correspondence; Advanced Philosophy of Physics (philosophical topics in thermodynamics and statistical mechanics). Graduate Seminars: Philosophy of science. One-on-one tutorial teaching in philosophy of science and philosophy of physics. Averaged eight contact hours of teaching per week. Involved in assessment of graduate students for admissions.

Research Fellow, Humboldt-funded Philosophy, Probability and Modeling Group, Center for Junior Research Fellows, University of Konstanz, November 2003 to September 2004. Research topics: confirmation, probability and forecasting in nonlinear modeling; implications for public policy and decision making. Directed philosophy of time reading group.

Fixed-term Lecturer, Department of Philosophy, Logic and Scientific Method, the London School of Economics, September 2002 to August 2003. Directed philosophy of physics program.

Teaching duties: Undergraduate Courses: Philosophy of Science and Scientific Method . Graduate Seminars: Philosophy of Science and Scientific Method (including special topics in philosophy of social science); Philosophical Introduction to Chaos; Research Seminars in Philosophy of Natural Science. Supervised small group teachers. Averaged nine contact hours of teaching per week.

Directed one PhD thesis, four Masters theses and one undergraduate thesis.

Organized a weekend conference for philosophy students at Cumberland Lodge, 15-17 November 2002. Served as assistant job placement officer.

Post-doctoral Research in Philosophy of Science, Institut für Grenzgebiete der Psychologie, February 2000 to August 2002. Supervisor: Dr. Harald Atmanspacher (physicist).

Research topics: foundations questions in physics; foundations and methodological questions in behavioral science; agency; causation.

Co-organized the International Interdisciplinary Workshop "Determinism," Schloss Ringberg, Rottach-Egern, Germany, 4-8 June 2001. Contributed to research seminars as well as arranged external speakers for colloquia.

Teaching Assistant, Department of Philosophy, University of Texas, 1993-1997. Small groups teacher for Contemporary Moral Problems, Problems in Knowledge and Valuation (Plan II Honors Program introduction to philosophy, covering history of ancient and modern philosophy, metaphysics, epistemology, existentialism and non-Western philosophies), Introduction to Philosophy of Religion, Introduction to World Philosophy, Mind and Body (introductory philosophy of mind), Introduction to Logic. Responsible for small group teaching; averaged seven contact hours of teaching per week. Supervised by teacher responsible.

Second Reader for University of Texas Plan II Honors Program Senior Thesis Spring 1997.

Manager of Information Sciences, Publications and Communications, Inc., June 1998 to July 1999.
Supervisor: Gary Pittman. Duties: lead software developer; managed subscription fulfilment department (responsible for 4 employees).

Research Scientist, Austin Research Associates August 1989 to December 1991. Supervisor: Dr. Lee Sloan. Duties: plasma physics research; scientific programmer; computer system manager.

Research Scientist, Applied Plasma Physics and Technology Division, Science Applications International Corporation. May 1985 to July 1989. Supervisor: Dr. Daniel C. Barnes. Duties: plasma physics research; scientific programmer; assistant computer system manager; organized internal seminars.

Research Assistant, Center for Theoretical Physics, University of Texas at Austin, September 1983 to May 1985. Supervisor: Dr. John A. Wheeler. Research topics: foundations of physics.

Education

PhD Philosophy, University of Texas, August 1999
MA Physics, University of Texas, December 1986
BS Physics, University of Texas, May 1984

Competitive Grants and Awards

BioLogos Evolution & Christian Faith three-year grant award for writing a textbook explaining contemporary scientific theories of origins to a religious audience, 2013-2015.

Philosophy of Science Association Travel Award for presentation of a paper at the 10th International Congress of Logic, Methodology and Philosophy of Science, Florence, Italy in 1995.

University of Texas Professional Development awards for travel to professional meetings to present research papers in 1992, 1994 and 1995.

NASA Office of Space Science and Applications Graduate Fellow 1990-1992.

Honors and Prizes

Visiting Scholar, Elizabethtown College, 17 June - 3 July 2015.

Visiting Scholar, Elizabethtown College, 3 June - 3 July 2014.

Visiting Scholar, Ludwig Maximilian University of Munich, 1-29 July 2013.

Elected American Scientific Affiliation Fellow, June 2013.

Visiting Marsico Scholar, University of Denver, 7-12 March 2006.

Visiting Fellow, Department of Philosophy, Logic and Scientific Method, London School of Economics, September 2003 to August 2005.

Associate Fellow, Centre for the Philosophy of Natural and Social Sciences, London School of Economics, July 2003 to August 2005.

Visiting Scholar, Institut für Grenzgebiete der Psychologie, Freiburg, Germany, 6-26 January 1999.

Visiting Scholar, Max Planck Institute für Extraterrestrische Physik in Garching, Germany, 27 May - 13 June 1997.

1993 John Templeton Foundation Prize for Humility Theology for the paper "Science and Theology: A Methodological Comparison."

Professional Activities

Consulting Editor for the *Journal of Theoretical and Philosophical Psychology*.

Area Editor for Philosophy of Science, The Internet Encyclopedia of Philosophy.

Referee for *Natural Science Foundation Social and Economic Sciences Directorate; Philosophy of Science; Synthese; Philosophical Quarterly; Erkenntnis, Australasian Journal of Philosophy; Journal of Consciousness Studies; New Ideas in Psychology; International Journal of*

Psychophysiology; Journal of Theoretical and Philosophical Psychology; Economics and Philosophy; Perspectives on Science: Historical, Philosophical, Social; Studies in History and Philosophy of Modern Physics; International Studies in Philosophy of Science; Foundations of Physics; International Journal of Theoretical Physics; Canadian Journal of Physics.

Books

Contextual Emergence: A Science-First Approach to Metaphysics, with Michael Silberstein (eight of ten draft chapters completed)

Advocates a science-first approach to metaphysics, presents a new account of emergence-contextual emergence-based on the sciences, and discusses the implications for reductionism, determinism, consciousness, free will and public reception of science.

The Physics of Emergence (Institute of Physics Publishing, under contract)

Examines the physical basis for emergence in physics and chemistry.

Understanding Scientific Theories of Origins: Cosmology, Geology and Biology in Christian Perspective, with Raymond Lewis, Larry Funk, Stephen Moshier and John Walton (InterVarsity Press, in press)

Explains and defends mainstream scientific theories for the origins of the universe, Earth/solar system, life and species to a religious audience.

The Philosophy of the Social Sciences (Continuum International Publishing Group, June 2007).

Along with exploring some traditional debates in philosophy of social science, brings novel criticisms to bear on value neutrality in social inquiry and methodological debates.

Between Chance and Choice: Interdisciplinary Perspectives on Determinism, edited with Harald Atmanspacher (Imprint Academic, 2002). I am primary editor.

Refereed, edited papers on determinism, chance and free will discussed from natural science, human science and philosophical perspectives.

Special Journal Issues

Naturalizing the Mind, *Mind and Matter* 12, issue 2 (2014), editor.

Varieties of Causation in Consciousness Studies, edited with J. Scott Jordan and Harald Atmanspacher *Journal of Consciousness Studies* 19, nos. 5-6 (2012).

Journal Articles

“Overcoming Neoliberalism,” with Frank C. Richardson and Jacqueline Garcia-Joslin, *Journal of Theoretical and Philosophical Psychology* 38 (2018, pp. 15-28). 40% authorship.

“Chaos,” *Stanford Encyclopedia of Philosophy* (substantive revision published October 2015).

Invited

“Paradigms, Processes and Values,” with Alan Barton, *Journal of Family Theory & Review* 6 (2014, pp. 241-256). Equal authorship.

“In Bondage to Reason: Evidentialist Atheism and Its Assumptions,” with Joshua Carr, *Christian Scholar's Review* XLII, no. 3 (2013, pp. 221-243). I am primary author.

“God and Methodological Naturalism in the Scientific Revolution and Beyond,” *Perspectives on Science and Christian Faith* 65, no. 1 (2013, pp. 10-23).

“Excluding the Causal Exclusion Argument against Nonreductive Physicalism,” *Journal of Consciousness Studies* 19, nos. 5-6 (2012, pp. 57-74).

“Psychology and Revelation,” *Research in the Social Scientific Study of Religion*, Vol. 23 (2012, pp. 239-267). **Invited.**

“Fluid Convection, Constraint and Causation,” *Interface Focus* 2 (2012, pp. 4-12).

“The *via Negativa*: Not the way to Physicalism,” *Mind and Matter* 8 (2010, pp. 203-216).

- “Whence Chemistry? Reductionism and Neoreductionism,” *Studies in History and Philosophy of Modern Physics* 41 (2010, pp. 171-177).
- “Contemporary Views on Compatibilism and Incompatibilism: Dennett and Kane,” *Mind and Matter* 7 (2009, pp. 91-110).
- “What Is This Naturalism Stuff All About?,” *Journal of Theoretical and Philosophical Psychology* 29 (2009, pp. 108-113).
- “What Could Be Worse than the Butterfly Effect?” *The Canadian Journal of Philosophy* 38 (2008, pp. 519-548).
- “Downward Causation in Fluid Convection,” *Synthese* 160 (2008, pp. 229-248).
- “Stability Conditions in Contextual Emergence,” with Harald Atmanspacher, *Chaos and Complexity Letters* 2 (2007, pp. 139-150). Equal authorship.
- “Contextual Emergence in the Description of Properties,” with Harald Atmanspacher. *Foundations of Physics* 36 (2006, pp. 1753-1777). I am primary author.
- “The Hidden Premise in the Causal Argument for Physicalism,” *Analysis* 66 (2006, pp. 44-52).
- “Determinism and Indeterminism,” *Encyclopedia of Philosophy, Second Edition*. Farmington Mills, MI: Thomson Gale (2006, Vol. 3, pp. 29-35).
- “Patching Physics and Chemistry Together,” *Philosophy of Science* 72 (2005, pp. 710-722).
- “Resonances, Unstable Systems and Irreversibility: Matter Meets Mind,” *International Journal of Theoretical Physics* 44 (2005, pp. 1879-1888).
- “Quantum Time Arrows, Semigroups and Time-Reversal in Scattering,” *International Journal of Theoretical Physics* 44 (2005, pp. 723-733).
- “Anvil or Onion? Determinism as a Layered Concept,” *Erkenntnis* 63 (2005, pp. 55-71).
- “Practices and Power,” with Frank Richardson, *Journal of Theoretical and Philosophical Psychology* 24 (2004, pp. 179-195). Equal authorship.
- “Arrow of Time in Rigged Hilbert Space Quantum Mechanics,” *International Journal of Theoretical Physics* 43 (2004, pp. 1675-1687).
- “Irreversibility in Quantum Mechanics,” with Arno Bohm and Manuel Gadella, *Discrete Dynamics in Nature and Society* 2004:1 (pp. 75-83). I am primary author.
- “Nonequilibrium Statistical Mechanics Brussels-Austin Style,” *Studies in History and Philosophy of Modern Physics* 35 (2004, pp. 1-30).
- “Free Will in *absentia*: Dennett on Free Will and Determinism,” *Journal of Theoretical and Philosophical Psychology* 23 (2003, pp. 168-183).
- “A Tale of Two Arrows,” *International Journal of Theoretical Physics* 42 (2003, pp. 2371-2377).
- “On Separating Prediction from Determinism,” *Erkenntnis* 58 (2003, pp. 169-188).
- “Science and Theology: A Methodological Comparison,” *Journal of Interdisciplinary Studies V* (1993, pp. 141-162).

Book Chapters

- “Complexity and Feedback,” with Michael Silberstein, in *Handbook of the Philosophy of Emergence*, Robin Hendry, Sophia Gibb and Tom Lancaster, eds. (Routledge, in press). **Invited**. Equal authorship.
- “Scientific Explanations Are Purposely Limited to Natural Causes,” in *Problems in Philosophy*, Steven Conway, ed. (Bloomsbury, in press). **Invited**.
- “Response to ‘Scientific Explanations Are Not Limited to Natural Causes,’” in *Problems in Philosophy*, Steven Conway, ed. (Bloomsbury, in press). **Invited**.
- “Copernican Principle,” in *Dictionary of Christianity and Science*, Paul Copan, et al. eds. (Zondervan, 2017, p. 111). **Invited**.

- “Darwinism,” in *Dictionary of Christianity and Science*, Paul Copan, et al. eds. (Zondervan, 2017, pp. 154-157). **Invited.**
- “Divine Action (Concursus View),” in *Dictionary of Christianity and Science*, Paul Copan, et al. eds. (Zondervan, 2017, pp. 183-185). **Invited.**
- “Revelation,” in *Dictionary of Christianity and Science*, Paul Copan, et al. eds. (Zondervan, 2017, pp. 575-577). **Invited.**
- “Science, Limits of,” in *Dictionary of Christianity and Science*, Paul Copan, et al. eds. (Zondervan, 2017, pp. 590-592). **Invited.**
- “Science and Modernity,” in *Dictionary of Christianity and Science*, Paul Copan, et al. eds. (Zondervan, 2017, pp. 603-605). **Invited.**
- “Science and the Bible,” in *Dictionary of Christianity and Science*, Paul Copan, et al. eds. (Zondervan, 2017, pp. 595-597). **Invited.**
- “Two Books Metaphor,” in *Dictionary of Christianity and Science*, Paul Copan, et al. eds. (Zondervan, 2017, pp. 666-667). **Invited.**
- “Contextual Emergence of Deterministic and Stochastic Descriptions,” with Peter beim Graben in *From Chemistry to Consciousness: The Legacy of Hans Primas*, Harald Atmanspacher and Ulrich Müller-Herold eds. (Springer 2016, pp. 95-110). **Invited.** Equal authorship.
- “From Order to Chaos and Back,” with Roman Frigg in *Rethinking Order: After the Laws of Nature*, Nancy Cartwright, Eleonora Montuschi, and Chris Pariso eds. (Bloomsbury Publishing 2016, pp. 55-73). **Invited.** Equal authorship.
- “Philosophical Hermeneutics and the One and the Many,” with Frank Richardson in *Festschrift in Honor of Charles Gungion*, Megan Altman ed. (Springer, 2015, pp. 145-164). **Invited, refereed.** Equal authorship.
- “Chaos, Indeterminism and Free Will,” in *The Oxford Handbook of Free Will*, second edition, Robert Kane ed. (Oxford University Press, 2011, pp. 84-100). **Invited**, revised from 2002.
- “The Causal Closure of Physics and Free Will,” with Harald Atmanspacher in *The Oxford Handbook of Free Will*, second edition, Robert Kane ed. (Oxford University Press, 2011, pp. 101-111). **Invited, refereed.** I am primary author.
- “Metaphysical and Epistemological Issues in Complex Systems,” in *Philosophy of Complex Systems, vol 10, Handbook of the Philosophy of Science*, Clifford Hooker volume ed. (North Holland 2011, pp. 119-150). **Invited.**
- “Free Will and the Causal Closure of Physics,” in *Visions of Discovery: New Light on Physics, Cosmology and Consciousness*, Raymond Chiao, William Phillips and Charles Harper eds. (Cambridge University Press, 2010, pp. 601-611). **Invited, refereed.**
- “Rigged Hilbert Spaces in Quantum Physics,” with J.-P. Antoine, A. Bohm and S. Wickramasekara in *Compendium of Quantum Physics: Concepts, Experiments, History and Philosophy*, D. Greenberger, K. Hentschel and F. Weinert eds. (Springer 2009, pp. 640-651). **Invited.**
- “Reductionism,” in *The Science and Religion Primer*, Heidi Campbell and Heather Looy eds. (Baker Academic 2008, pp. 189-192). **Invited.**
- “Cognitive Psychology: Hidden Assumptions,” in *Critical Thinking about Psychology: Hidden Assumptions and Plausible Alternatives*, Brent Slife, Jeffrey Reber and Frank Richardson eds. (American Psychological Association Books, 2005, pp. 151-170). **Invited, refereed.**
- “Deterministic and Indeterministic Descriptions,” in *Between Chance and Choice* (Imprint Academic, 2002, pp. 5-31). **Refereed.**
- “Rethinking Determinism in Social Science,” with Frank Richardson in *Between Chance and Choice* (Imprint Academic, 2002, pp. 425-45). **Refereed.**
- “Extrinsic and Intrinsic Irreversibility in Probabilistic Dynamical Laws,” with Harald Atmanspacher and

- Anton Amann in *Quantum Probability and White Noise Analysis Volume XIII*, Andrei Khrennikov ed. (World Scientific, 2002, pp. 50-70). **Invited**. Equal authorship.
- “La Physique, les Sciences Humaines et la Fin des Certitudes,” with Frank Richardson in *L’Homme Devant L’Incertain*, Ilya Prigogine ed., (Editions Odile Jacob, 2001, pp. 337-58). **Invited**.
- “Is Chaos Indeterministic?” with Fred Kronz in *Language, Quantum, Music: Selected Contributed Papers of the Tenth International Congress of Logic, Methodology & Philosophy of Science, Florence, August, 1995*, Maria Luisa Dalla Chiara, Roberto Guintini and Federico Laudisa eds. (Kluwer Academic, 1999, pp. 129-41). **Refereed**. I am primary author.
- “Magnetohydrodynamic Simulation of the Evolution of Large-Scale Magnetic Fields in Disk Galaxies,” with Daniel Barnes in *Galactic and Intergalactic Magnetic Fields*, R. Beck *et al.* eds. (Kluwer Academic, 1990, pp. 151-2). **Invited**. I am primary author.

Book and Review Essays

- The Believing Scientist: Essays on Science and Religion* by Stephen M. Barr in *Science & Christian Belief* 29, no. 2 (2017, pp. 183-184).
- The Evolution of Ethics: Human Sociality and the Emergence of Ethical Mindedness* by Blain Fowers in *Journal of Theoretical and Philosophical Psychology* 36, no. 3 (2016, pp. 190-197).
- Scientific or Sciencey? Review of Abominable Science? Origins of the Yeti, Nessie, and Other Famous Cryptids* by Daniel Loxton and Donald R. Prothero in *Books & Culture* (September/October 2015, pp. 19-20).
- God and Natural Order: Physics, Philosophy, and Theology*, in *Christian Scholars Review* XLIV, no. 3 (2015, pp. 317-321).
- Doubting the Signature: Stephen Meyer’s Case for Intelligent Design*. Review of *The Signature in the Cell: DNA and the Evidence for Intelligent Design* and *Darwin’s Doubt: The Explosive Origin of Animal Life and the Case for Intelligent Design* by Stephen C. Meyer, with Robert O’Connor in *Books & Culture* (November/December 2014, pp. 19-22). Equal authorship.
- The Extended Synthesis: Review of Darwin’s Doubt: The Explosive Origin of Animal Life and the Case for Intelligent Design*, BioLogos Forum (9 September 2014, <https://biologos.org/blogs/archive/the-extended-synthesis-reviewing-darwins-doubt-robert-bishop-part-1>).
- The Neural Basis of Free Will: Criterial Causation*, Peter Tse, in Notre Dame Philosophical Reviews (January 2014, <http://ndpr.nd.edu/news/45907-neural-basis-of-free-will-criterial-causation/>).
- Review Essay: Teleology at Work in the World? Mind and Cosmos: Why the Materialist Neo-Darwinian Conception of Nature Is Almost Certainly False*, Thomas Nagel, in *Mind and Matter* 11, no. 2 (2014, pp. 243-255).
- Review Essay: After Physicalism*, ed. Benedikt Göcke, in *Essays in Philosophy* 14, no. 2 (2013, pp. 269-290).
- The Abacus and the Cross: The Story of the Pope Who Brought the Light of Science to the Dark Ages* by Nancy Marie Brown in *Christian Scholars Review* XLI, no. 2 (2012, pp. 219-222).
- Elegance in Science: The Beauty of Simplicity* by Ian Glynn in *Physics Today* (June 2011, p. 56).
- Einstein, Polanyi and the Laws of Nature* by Lydia Jaeger in *Perspectives on Science & Christian Faith* 63 No. 4 (2011, pp. 286-287).
- Why Evolution Is True* by Jerry Coyne, in *Science and the Sacred*, BioLogos Forum (4 May 2011, <https://biologos.org/blog/series/weit-series>).
- Creating Scientific Concepts* by Nancy J. Nersessian, in *Perspectives on Science & Christian Faith* 62 No. 1 (2010, pp. 66-67).
- Recasting Reality with Wolfgang Pauli*, Harald Atmanspacher and Hans Primas eds., in *Mind and*

Matter 7, no. 2 (2009, pp. 249-251).
Niels Bohr's Philosophy of Quantum Physics in the Light of the Helmholtzian Tradition of Theoretical Physics by Steen Brock, in *ISIS* 95 (2004, pp. 334-335).
The Purpose of It All by Stanley L. Jaki, in *Science and Christian Belief* 4 No. 2 (1992, pp. 153-154).
Science and Creation by Stanley L. Jaki, in *Journal of Interdisciplinary Studies* II (1990, pp. 195-196).

Other Scholarly Publications

“A Dialog on Free Will: Robert Bishop,” *Method. Analytic Perspectives* 2, no 3 (2013, pp. 20-29).
“What Does It Mean to Be Human? A Response to Bruce Little, Part 2,” *BioLogos Forum* (2012, <http://biologos.org/blog/what-does-it-mean-to-be-human-a-response-to-bruce-little-part-2>).
“What Does It Mean to Be Human? A Response to Bruce Little, Part 1,” *BioLogos Forum* (2012, <http://biologos.org/blog/what-does-it-mean-to-be-human-a-response-to-bruce-little-part-1>).
“Recovering the Doctrine of Creation: A Theological View of Science,” *BioLogos Forum* (2011, <https://biologos.org/blogs/archive/recovering-the-doctrine-of-creation-a-theological-view-of-science-p-art-1>).

Articles Submitted

“Fooling Around: Creative Persuasion, Subversive Apologetics (under review)

Articles in Progress

“Determinism in Context”
“Contextual Emergence of Physical Properties,” with George Ellis
“Contextual Emergence in the Social Sciences”
“The Use of Nonlinear Models in Public Policy”
“Why the ‘Middle Ground’ of Entity Realism Remains Undisturbed”
“An Ambiguity in the Computational Theory of Mind”

Dissertation

Chaotic Dynamics, Indeterminacy and Free Will, directed by Robert Kane and Fred Kronz.
My dissertation combines knowledge and expertise from both physics and philosophy in an assessment of consequences of chaos, quantum mechanics and nonequilibrium statistical mechanics for determinism and free will. Part One deals with philosophical issues in chaos, quantum mechanics and statistical mechanics. Part Two rebuts several arguments purporting to demonstrate the irrelevance of physics to free will questions in the philosophical literature. Part Three develops a novel criticism of current free will theories, articulating and challenging common presuppositions and moral commitments held to some degree by all sides of the debates.

Masters Thesis

The One-Dimensional Two-Body Problem in Action-at-a-Distance Electrodynamics and Corporate Degrees of Freedom, directed by John Wheeler.
My thesis explores the Wheeler-Feynman formulation of time-symmetric action-at-a-distance electrodynamics. It presents the first ever solutions to the equations of motion in one dimension for two electrons in the relativistic regime.

Invited Presentations

“Reduction, Emergence and Critical Thinking,” ETH Zurich, 16-17 May 2018.
“Science, Theology and Liberal Arts Conversation”

- Panel, Theology and the Liberal Arts: Some Surprising Connections, Trinity International University, 2 March 2017.
 - Montreat College, 31 January 2017.
- “God in Action: A Trinitarian Approach to Creation and Science”
- Wheaton/Naperville Chapter of the American Scientific Affiliation, Wheaton College, 4 February 2016.
 - Areopagus Society Lecture, Uganda Christian University, Uganda, 28 October 2015.
- “Empire of Illusion, Tragic Vision, and the Question of Transcendence,” Featured Presentation, Psychology and the Other 2015, Cambridge, MA, 9-11 October 2015.
- “Cultural Illusions, Tragic Vision and the Question of Transcendence,” Plenary Session: Critique and Creation: Theoretical and Philosophical Psychology’s Role in Understanding and Transforming Culture, Mid-Winter meeting of the Society for Theoretical and Philosophical Psychology, Salt Lake City, UT, 5-7 March 2015.
- “The Causal Closure of Physics and Implications for Human Free Will and Action,” Philosophy of Science Center, Faculty of Sciences, University of Lisbon, Portugal, 20 May 2014
- “Determinism and Ethics,” Christ’s College, Taipei, Taiwan, 16 May 2014
- “Chaos, Complexity and the Question of Determinism,” Philosophy of Science Center, Faculty of Sciences, University of Lisbon, Portugal, 14 June 2013
- “Complexity and Contextual Emergence”
- Philosophy of Science Center, Faculty of Sciences, University of Lisbon, Portugal, 12 June 2013
 - Center for Theoretical Studies, Prague, Czech Republic, 7 June 2012.
 - Workshop on Emergence, Collegium Helveticum, Zurich, Switzerland, 4-5 June 2012.
- “Complexity and Physicalism,” Institut für Theoretische Physik, Universität Stuttgart, Stuttgart, Germany, 14 May 2013.
- “Free Will and the Causal Closure of Physics”:
- Mini-Conference on Philosophy of Science, Faith, and Science, Calvin College, 13-14 April 2012.
 - Mini-Conference on Free Will, Department of Philosophy, Texas Tech University, 7 April 2006.
 - Amazing Light: Visions for Discovery International Symposium in honor of Nobel Laureate Charles Townes, University of California, Berkeley, 6-8 October 2005.
- “Response to Alvin Plantinga’s ‘Faith and Reason’,” Wheaton College Science Symposium, 28-29 March 2012.
- “Response to Peter Bokulich’s ‘How Interactionist Dualism Runs Afoul of Physics’,” American Philosophical Association Pacific Division Meeting, Seattle, WA, 7 April 2012.
- “On the Contextually-Emergent Nature of Meaningful Action,”:
- Institut für Grenzgebiete der Psychologie, Freiburg, Germany, 17 May 2011.
 - Department of Psychology, Illinois State University, 2 April 2010.
- “The Doctrine of Creation: Mediated Action and Science,” Calvin College, 8 April 2011.
- “Science and Religion: Integration or Reconciliation?”:
- Calvin College, 7 April 2011.
 - National Student Leadership Conference, Taylor University, 17-18 April 2009.
 - Elizabethtown College, 20 March 2009.
- “Free Will, Contexts and the Laws of Physics,” workshop on Where Free Will and Nature Meet, St. Peter’s College, Oxford, England, 19 May 2010.
- “What Is a Theory?,” Physics Department, University of Chicago, 9 April 2010.
- “What’s a Theory? Comparing Physics and Evolutionary Biology,” workshop on The Meaning and Role of Theory in Evolutionary Biology, Green College, University of British Columbia, 6 November 2009.

- “Reductionism Meets Complexity,” The Society for the Metaphysics of Science, American Philosophical Association Central Meeting, Chicago, 19 February 2009.
- “I don’t Know How to Defend Physicalism”:
- Institut für Grenzgebiete der Psychologie, Freiburg, Germany, 16 May 2008.
 - Department of Philosophy, University of Texas at Austin, 9 December 2005.
 - Department of Philosophy, Texas Tech University, 27 October 2005.
- “Social Kinds vs. Natural Kinds,” Department of Psychology, Simon Fraser University, 3 October 2006.
- “The Use of Mathematical Models in Public Policy”:
- Division of Natural Sciences, University of Denver, 10 March 2006.
 - University of Konstanz, 20 May 2004.
- “Free Will and Physics”:
- History and Philosophy of Science Department, Eötvös University, Budapest, Hungary, 20 September 2004.
 - Institute for the History and Foundations of Mathematics and the Natural Sciences, University of Utrecht, The Netherlands, 22 September 2000.
- “Irreversibility, and Time Arrows in a Generalization of Nonrelativistic Quantum Mechanics,” European Science Foundation International Workshop on The Arrow of Time: Physics and Philosophy, Louvain-la-Neuve, 7-8 May 2004.
- “Notes on Practices and Power,” with Frank Richardson, 111th Annual American Psychological Association Convention, Toronto, 7-10 August 2003.
- “Resonances, Unstable Systems and Irreversibility: Matter Meets Mind,” CFIF Workshop on Time Asymmetric Quantum Theory: The Theory of Resonances, 23-26 July 2003, Instituto Superior Técnico, Lisbon, Portugal.
- “Downward Causation in Complex Systems: Implications for Mind-Matter Issues,” Aspects of Mind-Matter Research, Wildbad Kreuth, Germany, 21-27 June 2003.
- “What Could Be Worse than the Butterfly Effect?” Philosophy of Physics Discussion Group, Oxford University, 28 May 2003.
- “Patching Physics and Chemistry Together,” Popper Seminar, London School of Economics, 11 February 2003.
- “Deterministic and Indeterministic Descriptions in Physics,” Institute for the History and Foundations of Mathematics and the Natural Sciences, University of Utrecht, The Netherlands, 13 November 2002.
- “Mental Agency and Psychology: Hidden Moral Dimensions,” 110th Annual American Psychological Association Convention, Chicago, 22-25 August 2002.
- “A Tale of Two Arrows,” Fifth Annual Workshop on Time Asymmetric Quantum Physics and Rigged Hilbert Spaces, International Center for Theoretical Physics, Trieste, Italy, 29 July- 2 August 2002.
- “Functional Reductionism and Instrumental Agency,” 109th Annual American Psychological Association Convention as part of the symposium “Agency, Meaning, and Reductionism in Psychology,” San Francisco, 24-28 August 2001.
- “Deterministic and Indeterministic Descriptions,” International Interdisciplinary Workshop “Determinism”, Schloss Ringberg/Rottach-Egern, Germany, 4-8 June 2001.
- “Rethinking Determinism in Social Science,” with Frank Richardson, International Interdisciplinary Workshop “Determinism”, Schloss Ringberg/Rottach-Egern, Germany, 4-8 June 2001.
- “Nonequilibrium Statistical Mechanics Brussels-Austin Style”:
- All Souls College, Oxford University, 26 April 2001.
 - Sigma Club, Center for Philosophy of Natural and Social Science, London School of Economics, 24 April 2001.

- Quantum Club, Institute for the History and Foundations of Mathematics and the Natural Sciences, University of Utrecht, The Netherlands, 20 September 2000.
- “Reconciling Determinism and Freedom in the Behavioral Sciences,” Philosophy Department, University of Texas at Austin, 16 November 2000.
- “What Do Physics and Chemistry Have to Say about Causal Exclusion and Emergence,” Philosophy Department, Elizabethtown College, 10 November 2000.
- “Free Will Debates in Philosophy and Psychology: Hidden Moral Dimensions,” 108th Annual American Psychological Association Convention, Washington, DC, 4-8 August 2000.
- “Ilya Prigogine and Time,” Philosophy Department, University of Freiburg, Freiburg, Germany, 19 January 1999.
- “Physics and Free Will: Versions of Determinism,” Institut für Grenzgebiete der Psychologie, Freiburg, Germany, 14 January 1999.
- “The Quantum Mechanical Arrow of Time and Rigged Hilbert Space,” Center for Philosophy of Science, University of Pittsburgh, 8 May 1998.
- “Physics and Freedom of the Will,” University of Texas as part of “Facing the Uncertain,” an interdisciplinary seminar organized by Ilya Prigogine, 23 April 1998.
- “An Introduction to Rigged Hilbert Spaces in Quantum Mechanics,” Max Planck Institute für Extraterrestrische Physik, Garching, Germany, 4 June 1997.
- “Science and Theology: A Methodological Comparison,” International Christian Studies Association Third World Congress, Pasadena, CA, 7-9 August 1992.
- “Quantum Physics and the Identity of Indiscernibles,” University of Texas Ontology Workshop, 7-9 December 1991.

Refereed Conference Presentations

- “Dual-Aspect Monism: Review and Questions,” Models for Dual-Aspect Monism, Zen Zentrum Johanneshof-Quellenweg, Herrischried, Germany, 14-17 June 2018
- “Determinism as a Contextual Feature of Reality,” 13th Annual Athens Institute for Education and Research Conference on Philosophy, Athens, Greece, 28-30 May 2018.
- “Reading a History Book: Shedding Light on Psychology Through an Unlikely Source,” Symposium: Exploring Theoretical and Philosophical Psychology’s Ways of Knowing, Mid-Winter meeting of the Society for Theoretical and Philosophical Psychology, Phoenix, AZ, 2-4 March 2018.
- “Sources of Crisis,” Symposium: Enduring Crises in Social Science and the Humanities, Mid-Winter meeting of the Society for Theoretical and Philosophical Psychology, Richmond, VA, 10-12 March 2017.
- “Bottoms Up! What of Theory and Evidence?,” Psychological Theorizing and the Claim of Personal Experience, Symposium, American Psychological Association Annual Convention, Denver, CO, 4-7 August 2016
- “Ontological Relationality, the Experience of Otherness, and Rethinking Transcendence,” Transcendence–Visions of Possibility in Psychological Theory, Research, and Practice, Symposium, American Psychological Association Annual Convention, Washington, DC, 7-10 August 2014.
- “Transcendence in Psychology,” Listening to the Claims of Experience–Transcendence and Psychology Symposium, American Psychological Association Annual Convention, Honolulu, Hawai’i, 31 July - 4 August 2013.
- “Theorizing in Physics and Biology: Comparisons, Contrasts, Philosophical Questions,” British Society for Philosophy of Science Annual Meeting, University of Stirling, 5-6 July 2012.
- “Complexity and Contextual Emergence,” 7th Annual Athens Institute for Education and Research Conference on Philosophy, Athens, Greece, 28-31 May 2012.
- “Enlightenment, Alienation, and Reconciling the One and the Many: Colin Gunton and Human

- Inquiry,” Mid-Winter meeting of the Society for Theoretical and Philosophical Psychology, Austin, TX, 1-3 March 2012.
- “God and Methodological Naturalism in the Scientific Revolution and Beyond,” American Scientific Affiliation Annual Meeting, Naperville, TX, 28 July - 1 August 2011.
- “Charles Taylor’s Robust Realism,” Mid-Winter meeting of the Society for Theoretical and Philosophical Psychology, Miami, FL, 22-23 February 2008.
- “Patching Physics and Chemistry Together,” Philosophy of Science Biannual Meeting, Austin, TX, 18-21 November 2004.
- “Anvil or Onion: Determinism as a Layered Concept,” British Society for the Philosophy of Science Annual Meeting, Canterbury, 8-9 July 2004.
- “Nonlinear Systems and Confirmation: Public Policy Implications,” First International Winter School on Physics of Socio-Economic Systems, Konstanz, Germany, 16-21 February 2004.
- “Nonlinearity and Indeterminism,” 12th UK Conference on the Foundations of Physics, Leeds, England, 2-5 September 2003.
- “Rigged Hilbert Space Quantum Mechanics: Time Arrows and Time-Reversal,” 12th International Congress of Logic, Methodology and Philosophy of Science, Oviedo, Spain, 7-13 August 2003.
- “Molecular Chemistry: Challenging Reduction and Emergence,” British Society for the Philosophy of Science Annual Meeting, Belfast, 17-18 July 2003.
- “Towards a Realistic Interpretation of Rigged Hilbert Space Quantum Mechanics,” 11th UK Conference on the Foundations of Physics, Oxford, England, 9-13 September 2002.
- “Downward Causation in Complex Systems,” British Society for the Philosophy of Science Annual Meeting, Glasgow, Scotland, 4-5 July 2002.
- “Quantum Time Arrows, Semigroups and Time-reversal,” International Quantum Structures Association Sixth Biennial Meeting, Vienna, Austria, 1-7 July 2002.
- “The Quantum Mechanical Arrow of Time and Rigged Hilbert Space,” International Quantum Structures Association Fifth Biennial Meeting, Cesenatico, Italy, 31 March - 5 April 2001.
- “Consciousness and Free Will: A Nonequilibrium Statistical Mechanics Perspective,” Tucson 2000: Towards a Science of Consciousness, Tucson, AZ, 10-15 April 2000.
- “Toward a Dialogical Account of Human Behavior,” 11th International Congress of Logic, Methodology and Philosophy of Science, Cracow, Poland, 20-26 August 1999.
- “Is Classical Chaos Indeterministic?,” 10th International Congress of Logic, Methodology and Philosophy of Science, Florence, Italy, 19-25 August 1995.
- “Confirmation in the Sciences and Theology,” Kentucky State University Institute for Liberal Studies 5th Interdisciplinary Conference on Science, Technology and Religious Ideas, 7-9 April 1994.

Contributed Poster Papers

- “The Galactic Dynamo in the Presence of a Gaseous Halo,” with Paul Shapiro, International Astronomical Union Symposium on the Interstellar Disk-Halo Connection in Galaxies, Leiden, The Netherlands, 18-22 June 1990.
- “Flexible Semi-Implicit algorithms for 3-D MHD Simulations,” with Daniel Barnes and Paul Shapiro, 13th Conference on the Numerical Simulation of Plasmas, Sante Fe, NM, 17-20 September 1989.
- “Magnetohydrodynamic Simulation of the Evolution of Large-Scale Magnetic Fields in Disk Galaxies,” with Paul Shapiro and Daniel Barnes, International Astronomical Union Symposium on Galactic and Intergalactic Magnetic Fields, Heidelberg, Germany, 19-23 June 1989.