

CURRICULUM VITAE

Soazig Le Bihan

OVERVIEW

Contact

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AOS

- **Philosophy of Science**, in particular: models, causation, the semantic view, realism vs. antirealism, interpretations of probability.
- **Philosophy of Physics**, in particular: quantum mechanics, Bell's theorem, locality

AOC

- **History of Philosophy**: Ancient Philosophy, Hellenistic Philosophy, Modern Philosophy, with a special competence in Plato, Aristotle, Lucretius, Plotinus, Descartes, Kant, Fichte, and Nietzsche.
- **Metaphysics** (history from from Plato to Nietzsche)

Higher Education

- **Double Ph. D.**, from the University of Nancy, France, and the University of Bielefeld, Germany, successfully defended on February 13th, 2008, obtained with high distinction
 - Title: *Understanding Quantum Phenomena*
 - Defense Jury:
 - Chair: Dr. Guido Bacciagaluppi, University of Sydney
 - Prof. Harvey Brown, Oxford University
 - Prof. Michel Bitbol, University of Paris 1 – Sorbonne
 - Prof. Martin Carrier, University of Bielefeld
 - Prof. Michael Detlefsen, University of Notre Dame
 - Prof. Gerhard Heinzmann, University of Nancy 2 – Henri Poincaré
- (2004) B.S. in Fundamental Physics, University of Paris VI – Jussieu
- (2001-2002) Visiting graduate student in the Philosophy Department at Princeton University, research supervised by Prof. Bas van Fraassen
- (2001) DEA in philosophy, University of Paris IV – Sorbonne, obtained with high distinction (equivalent: two years of graduate school)
 - Supervision: Prof. Daniel Andler
 - Thesis Topic : *From EPR to Bell's Theorem : what makes quantum behavior specific ?*
- (2000) Agrégation in philosophy, ranked 14 in a class of 80 (2000 applicants)
- (1999) *Maîtrise* in philosophy, University of Paris X - Nanterre, obtained with high distinction (equivalent: one year of graduate school)
 - Supervision: Prof. Ali Benmakhlouf
 - Thesis Topic : *World-language and logic of possibilities: the conditions for the world to be word in the Tractatus logico-philosophicus of L. Wittgenstein*
- (1998) B.A. Philosophy, University of Paris I - Sorbonne

References

- Prof. Guido Bacciagaluppi (Sydney)
- Prof. Harvey Brown (Oxford)
- Prof. Martin Carrier (Bielefeld)
- Prof. Gerhard Heinzman (Nancy)
- Prof. Bas van Fraassen (Princeton University)

SCHOLARSHIPS AND GRANTS

- (2006-2008) Sawyer Predoctoral Fellowship, I.I.T, Chicago
 - (April 2007) DAAD Fellowship
 - (Feb. 2007) Fellowship Université Franco-Allemande
 - (Sept. 2006) Graduate Fellowship – Bielefeld University
 - (July 2005) Huguette Delavault Fellowship from the Association des Femmes Françaises Diplômées de l'Université (AFFDU) (Association of the French Graduate Women)
 - (Sept. 2004) Conference Expenses Graduate Fellowship 13th UK Meeting on the Foundations of Physics, York
 - (Sept. 2003) Conference Expenses Graduate Fellowship, Colloque SOPHA, Montréal
 - (August 2003) Travel Grant, Comité National de Philosophie et d'Histoire des Sciences, LMPS Congress, Oviedo
 - (2002-2005) Mobility Graduate Fellowship, European Union
 - (2001-2002) Jane Eliza Procter Visiting Fellowship, full tuition, required student health plan fees, and stipend for the year as graduate student at Princeton University.
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Explanation: Agrégation, Ecole normale supérieure

Agrégation Highest teaching certification examination. *Agrégation* holders are certified to teach any class in their subject matter (in my case philosophy) at the undergraduate level.

ENS (Ecole Normale Supérieure – From ENS website) **Foundation and mission statement:**

[...] The decree of August 26th 1987, which established the new School, stipulates in article 2: “through advanced cultural and scientific training, the Ecole normale supérieure prepares students who are geared towards fundamental or applied scientific research, towards teaching at university level and preparatory programs for entrance examinations to the Grandes Écoles and, more generally speaking, students who seek to join Central and Territorial Government Administrations, their public establishments and their businesses.”

Instruction

Instruction Education through research at the ENS includes a vast range of scientific and literary subjects, organized into thirteen departments or literary and scientific sections (biology, chemistry, cognitive studies, geography, history, computer science, literature and languages, pure and applied mathematics, philosophy, physics, ancient science, social sciences, earth-atmosphere ocean). Research laboratories and educational services are tightly interwoven throughout each of these departments or sections. Although the School's main mission statement has always been to train professors, it has broadened its horizons considerably and students' career opportunities have now become extremely varied.

Students must pass an examination to enter the School, after having studied for at least two years at an institution of higher learning. Schooling at the ENS lasts for four years. Students commence with pre-doctoral studies, composed of a graduate program (equivalent to a *licence* (degree) or *maîtrise* (masters)), and a *DEA* (diploma of advanced studies), which generally take up the first two to three years of study. Students then embark on a thesis, coupled with some form of preparation for a teaching certification exam (*agrégation*). In addition to these four years of study, during which both French and European *normaliens* (students of the ENS) are paid as official civil-servant trainees (approximately 1,200 Euros per month), students have the option to extend their course of study for two unpaid years, which are often spent abroad. These students are frequently aided by grants and exchange agreements.

The ENS does not award any diplomas. Students enroll at university to obtain their final honors and postgraduate diploma, followed by their thesis. This structure, which enables the School to attract the best students, also creates lasting bonds with the University that continue throughout each student's university career.

RESEARCH

- Main Interests**
- Quantum mechanics: Bell-type theorems, locality, Fine's prism models
 - Causation in physics, in particular probabilistic causation
 - Scientific understanding
 - Scientific models
 - Semantic view of scientific theories
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- In Progress**
- Articles:
 - The various causal pictures underlying Bell-type phenomena
 - The issue of Locality in Bell-type theorems: a spacetime approach
 - Editor of a book on the philosophy of physics in French, Syllepse Editions
 - French translation of *Scientific Image*, Bas van Fraassen, with Feisal Ben Hassel and Guillaume Garetta
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- Submitted**
- Defending the Semantic View: What It Takes?, resubmitted to *Philosophy of Science*
 - Fine's ways to fail to secure local realism, under review
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- Forthcoming**
- Bohm vs. Many-Worlds: How Understanding Matters – Or Not, Contribution accepted in *Understanding Quantum Physics*, book accepted for publication to Elsevier, with editorial committee: Dennis Dieks and Miklos Redei, "Philosophy and Foundations of Physics" series
 - Des mondes et des particules (world and particles), Comment on Jean Bricmont, Proceedings of the Second Pierre Duhem Conferences, Vuibert editions
 - Book Review on Lars-Göran Johansson, *Interpreting Quantum Mechanics: A Realistic View in Schrödinger Vein*, in *International Studies in the Philosophy of Science*
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- Published**
- (2008) La conception sémantique des théories scientifiques II : Comment peut-elle rester « sémantique » ? (The semantic conception of scientific theories II: how can it remain « semantic » ?), *Matière Première*, 3
 - (2007) What status should be given to the quantum description of the world?, Comment on A. Zwirn, in Soler, L., Sankey, H., and Hoyningen-Huene, P. (Eds.), *Rethinking the Comparative Evaluation of Scientific Theories, Stabilities, Ruptures, Incommensurabilities*, Boston Studies in the Philosophy of science, 255, Springer
 - (2006) La conception sémantique des théories scientifiques I: En quoi a-t-elle pu se dire « sémantique ? » (The semantic conception of scientific theories I: in what sense is it « semantic » ?), *Matière Première*, 1
 - (2005) L'interprétation de la mécanique quantique (Survey article on the interpretations of quantum theories) *Atala*, 8
 - (2004) Saving Incommensurability : semantic theory of meaning or semantic theory of science? Comment on Martin Carrier, *Philosophia scientiae* 8 (1)
 - (2005) Entries in the *Cultural Dictionary of French Language*, Le Robert : "Invention" ; "Impression" ; "Steam" ; "Science" ; "Sea"
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- Invited Talks**
- (May 2008) Defending the semantic view: what it takes, Conference *Entanglement and Complexity*, University of Nice-Sophia Antipolis
 - (Feb. 2008) Bell-type correlations: the hidden causal picture re-assessed, Center for Philosophy of Science, Pittsburgh
 - (Jan. 2008) Defending the semantic view: what it takes, Philosophy Colloquium, University of South Carolina
 - (May 2007) Worlds and particles, Comment on Jean Bricmont for the *Pierre Duhem Conference*, Ecole Normale Supérieure, Paris.
 - (Mars 2007) Philosophical Interpretations of quantum mechanics, invited lecture for the *Alliance Française*, University of Missoula
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Refereed**Conferences**

- (Nov. 2008) Defending the semantic view: what it takes, *Philosophy of Science Association Conference*, Pittsburgh
- (June 2006) In defense of the semantic conception of scientific models, *HOPOS Conference*, Paris
- (April 2006) Logical or scientific models: a false dilemma for the semantic view, 33rd Annual *Dubrovnik Philosophy of Science Conference*
- (Jan. 2005) Que reste-t-il des lois de nature dans la conception sémantique des théories scientifiques ?, Communication in the Symposium "What is the future for laws of nature?" for the *First Congress of the Société de Philosophie des Sciences*, Paris.
- (Dec. 2004) Statistical independence : locality or rationality ? , One-day Conference, *Philosophy, Physics and Probability*, Paris.
- (Sept. 2004) Experimental metaphysics from a certain perspective, communication in the *13th Meeting on the Foundations of Physics*, York.
- (June 2004) What status should be given to the quantum description of the world ?, Answer to the communication by A. Zwirn, International Conference *Rethinking the Comparative Evaluation of Scientific Theories*, Nancy
- (Nov. 2003) with Anouk Barberousse, CNRS-IHPST, From physics to ontology? Answer to the communication Explanation, Emergence and Quantum-entanglement by A. Hütteman, International Conference *Reduction and Emergence*, Ecole Normale Supérieure, Paris
- (Sept 2003) About non-locality: experience, theory, interpretation : the levels of legitimacy of scientific discourses, communication given in the Conference of Analytic Philosophy Conference in Montreal : *Language, Thought, Action* (SOPHA)
- (August 2003) Epistemological morals of a twenty year long meaningless discussion about non-locality, *International Congress of Logic, Methodology and Philosophy of Science*, Oviedo
- (April 2003) Non-locality: a twenty year long meaningless discussion, *International Congress of Philosophy of Science*, Dubrovnik

Other**Presentations**

- (Mars 2007) Logical models vs. scientific models: a false dilemma for the semantic view, *Philosophy Forum*, University of Missoula
- (December 2006) A Fine lecture, *Humanities Department Colloquium*, I.I.T.
- (Mai 2006) Sur l'interprétation du théorème de Bell par Fine, *Graduate Conference IHPST*, Paris
- (April 2006) Sur quelques mythes concernant la conception sémantique des modèles scientifiques, One-day Conference, *Vie Vécue, vie expliquée*, Centre Cavailles, Ecole Normale Supérieure, Paris
- (January 2006) The interpretations of quantum mechanics: the current state of play, *Physics Seminar*, University of Bielefeld
- (Nov 2005) Statistical independence in Bell's theorem: locality or rationality? *Neuere Themen der Wissenschaftsphilosophie Seminar*, University of Bielefeld
- (Oct 2005) Statistical independence in Bell's theorem: locality or rationality? *Young Quantum Meetings*, CREA, Brussels
- (August 2005) Statistical independence: locality or rationality? Summer School Philosophy, *Probability and Physics*, Konstanz.
- (June 2005) L'indépendance statistique entre localité et rationalité, *Graduate Conference*, Paris VII.
- (March 2005) Statistical Independence: Locality or Rationality?, *Work in Progress graduate seminar*, University of Pittsburgh.
- (March 2005) Les interprétations de la mécanique quantique, *Quantum Afternoons*, University of Nancy
- (March 2003) Saving incommensurability: semantic theory of meaning or semantic theory of science? Comment on Martin Carrier: "Semantic Incommensurability and Empirical Comparability : the Case of Lorentz and Einstein", during a one-day conference with Prof. Martin Carrier as special speaker in Nancy

Popular

- (February 2004) Participation on a TV program: *Scientific Revolutions* broadcasted on the educational series *Les Amphibis de la Cinquième*

TEACHING

Teaching Competence

- **Graduate level:**
 - Philosophy of Physics
 - Philosophy of Science
 - History of Science
 - **Advanced Undergraduate:**
 - Ancient Philosophy: Plato, Aristotle, Hellenistic Philosophies
 - Modern philosophy: Descartes, Leibniz, Spinoza, Hobbes, Berkeley, Locke, Hume
 - German philosophy: Kant, Fichte, Nietzsche
 - History of Metaphysics
 - **Introductory:** philosophy, logic, ethics, philosophical reasoning, science and religion
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Teaching Experience

- **300-level Undergraduate:**
 - Ancient Philosophy, I.I.T. Fall 2006, Springs 2007 and 2008
 - Modern Philosophy, I.I.T, Fall 2007
 - History and Philosophy of Science, University of Paris VI, Spring and Fall 2002 and 2003
 - **200-level Undergraduate**
 - History and Philosophy of Science, University of Montana, Fall 2008
 - Ethics: The Great Traditions, University of Montana, Fall 2008
 - Statistical Methods and Computer Science for the Humanities, University of Paris VI, Spring and Fall 2002 and 2003
 - **100-level Undergraduate:** Age of Darwin, I.I.T, Fall 2006, 2007, Spring 2007, 2008
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UNIVERSITY POSITIONS AND PROFESSIONAL ACTIVITIES

University Positions

- (2008-present) Assistant Professor at the University of Montana, Missoula, MT
 - (2006-2008) Sawyer Fellow, Illinois Institute of Technology, Chicago
 - (2005-2006) Graduate Fellow, Bielefeld University
 - (2002-2005) Allocation Couplée, Ministère de l'éducation et de la recherche, including:
 - Graduate Fellow, University of Nancy 2
 - Teaching Instructor, University of Paris VII – Jussieu
 - (1997-2001) Ecole Normale Supérieure
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Service

- (Since 2003) Referee for *Philosophia Scientiae*
 - (Jan 2005) Co-organizer of the SPS First Congress (Société de Philosophie des Sciences: French Philosophy of Science Society), Paris
 - (Sept 2004) Member of the Organization Committee of the SPS Summer School, Saint-Aygulf
 - (June 2004) Member of the Organization Committee for the International Conference in Nancy - Archives Poincaré: *Rethinking the comparative evaluation of scientific theories: stabilities, ruptures, incommensurabilities?*
 - (2004-2005) Philosophy of Physics Graduate Seminar, Organizer, Ecole Normale Supérieure, Paris
 - (2004-2005) Philosophy of science graduate seminar, Co-organizer with Cyrille Imbert, Ecole Normale Supérieure, Paris
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Memberships

- Associated member: LPHS – Archives Poincaré, Nancy and IHPST – Paris
 - Société de Philosophie des Sciences
 - American Philosophy Association
 - Philosophy of Science Association
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GRADUATE COURSES

- **Doctoral:**
 - Archives Poincaré's Seminar, multiple contributions in HPS – University of Nancy 2
 - From Physics to Philosophy, Princeton University – Adam Elga and Hans Halvorson
 - Perspectives and Representation, Princeton University – Bas van Fraassen
 - **DEA:**
 - Topics in HPS, common to ENS, Paris IV Sorbonne and Paris X Nanterre, Paris – Daniel Andler and Anne Fagot Largeault
 - Science and Metaphysics in Leibniz's Work, University of Paris IV – Sorbonne – Michel Fichant
 - **Maîtrise:**
 - Reading M. Heidegger, *Unterwegs zur Sprache*, Didier Franck
 - Reading Plato, *The Statesman*, Jean-François Balaudé
 - 20th Century Analytic Philosophy, Ali Benmakhlouf
 - **Agrégation:**
 - General Philosophy, ENS, Paris – Quentin Meillassoux
 - Ancient Metaphysics – University of Paris X – Nanterre – F. Wolff
 - Modern Metaphysics, University of Paris X – Nanterre – E. Faye
 - German Metaphysics, University of Paris X – Nanterre – C. Malabou
 - Philosophy of Aristotle, E.N.S, F. Wolff
 - Philosophy of Descartes, University of Paris X - Nanterre – D. Kambouchner
 - Philosophy of Plotinus, University of Paris X – Nanterre – J.F. Balaudé
 - Philosophy of Fichte, University of Paris I – Sorbonne ENS – I. Thomas-Fogiel
 - Philosophy of Hobbes, University of Paris X - Nanterre – D. Deleule
 - Philosophy of Berkeley, University of Paris X – Nanterre – P. Hamou
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