

CURRICULUM VITAE

CRISTIAN ARIEL LÓPEZ

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PERSONAL INFORMATION

Current Address 1327 Directorio avenue, sixth floor, apartment B, Buenos Aires City,
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Work Address 480 Puán street, fourth floor, “Instituto de Filosofía ‘Alejandro
Korn’, University of Buenos Aires.

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AREA OF STUDY

AOS Philosophy of time, philosophy and ontology of quantum mechanics,
foundations of physics.

AOC Philosophy of science, analytic metaphysics, logic.

EDUCATION

2014 – Present. Doctoral Student in Philosophy (Ph.D.) at University of Buenos
Aires.

2009 – 2014. Licentiate in Philosophy (equivalent to a Master’s degree according to the Bologna Process) of Faculty of Philosophy and Arts at University of Buenos Aires. **Grade point average: 9.87/10**. Thesis: “The Nature of the Arrow of Time and the Arrow of Time of Nature” (10/10). Supervisor: Dra. Olimpia Lombardi.

GRANTS

2017 Junior Fellowship for visiting students at *the Munich Centre for Mathematical Philosophy*, 800 euros per month.

2015 – 2020 Graduate fellowship for doctoral studies. Granted by CONICET. Research title: ‘An informational reconstruction of the arrow of time’. Supervisor: Dra. Olimpia Lombardi.

2013 – 2014 Undergraduate fellowship ‘Estímulo a la investigación científica de la Universidad de Buenos Aires’. Granted by University of Buenos Aires. Research Title: ‘The problem of the arrow of time in physics’. Supervisor: Dra. Olimpia Lombardi.

2013 – 2014 Undergraduate fellowship “Estímulo a la vocación científica”. Granted by National Interuniversity Centre of Argentina.

PUBLICATIONS

2015 “Deflationing the deflationary view of information”, in *European Journal for Philosophy of Science*, DOI 10.1007/s13194-015-0128-7 (online). Co-authored by Olimpia Lombardi and Sebastian Fortín.

“Measurement, interpretation and information” in *Entropy*, 17: 7310-7330. Co-authored by Olimpia Lombardi and Sebastian Fortín.

“Información clásica y cuántica: ¿dos tipos de información?” (“Classical and quantum information: two kinds of information?”), in *Scientiae Studia*, University of Sao Pablo, vol. 13, n°1: 143-174. Co-authored by Olimpia Lombardi.

“Ergodicidad y determinismo” (“Ergodicity and determinism”), in Claudia Vanney and Olimpia Lombardi (eds.). *Fronteras del determinismo científico: filosofía y ciencias en diálogo*, ISBN: 978-84-16345-72-4, 233 pp., Madrid: Biblioteca Nueva. Pp. 39-54.

2014 “El problema de las clases naturales en química: consideraciones acerca del esencialismo kripkeano desde la filosofía de la química” (“The problem of natural kinds in chemistry: considerations about Kripkean essentialism from the philosophy of chemistry”) in *Revista Colombiana de Filosofía de las Ciencias*, University of Bosque, Vol. XIII, N° 26: 145-166.

2013 “Mecánica clásica y relatividad especial: espacio, tiempo y masa” (“Classical mechanics and special relativity: space, time and mass’), in H. Severgnini, J. G. Morales y L. Rabinovich (eds.) *Epistemología e Historia de la Ciencia: Selección de trabajos de las XIII Jornadas*, ISBN: 978-950-33-1073-1, 493 páginas, Centro de Investigaciones de la Facultad de Filosofía y Humanidades de la Universidad Nacional de Córdoba, pp. 247-255.

CONFERENCE PRESENTATIONS

2015 “Some remarks on (symmetric?) time in quantum mechanics” in *V Conference on Quantum Foundations: Ontological Problems 80 Years after EPR*, Buenos Aires, Argentina, December 1-4.

“¿Permite el colapso definir una flecha cuántica del tiempo?” (“May the collapse define a quantum arrow of time?”), in *XXVI Jornadas de Epistemología e Historia de las Ciencias*, La Falda, Argentina, Novembre 18-21.

“Asimetría temporal y mecánica cuántica desde una perspectiva filosófica” (“Temporal asymmetry and quantum mechanics from a philosophical viewpoint”), in *100° Reunión Nacional de la Asociación Física Argentina*, Merlo, San Luis, Septiembre 21-24.

“Una navaja de Ockham informacional” (“An informational Ockham’s razor”), in *XVI Jornadas Rolando Chuaqui Kettlun filosofía y ciencias*, Santiago de Chile, Chile, August 26-28.

“Against a monistic view of information – Information in biological and physical contexts”, in the *15° Congress of Logic, Methodology and Philosophy of Science*, Helsinki, Finland, August 3-8. Co-authored by María José Ferreira

“Information, entanglement and causation” in the *15° Congress of Logic, Methodology and Philosophy of Science*, Helsinki, Finland, August 3-8. Co-authored by Olimpia Lombardi

“Asimetría temporal y flujo de información: hacia una formulación del problema de la flecha del tiempo en el marco de la teoría de la información” (“Temporal asymmetry and the flow of information: towards an informational reformulation of the problem of the arrow of time”), in the *XVII Congreso Nacional de Filosofía*, Santa Fé, Argentina, 4-8 August. Co-authored by Mariana Córdoba.

“Entropía e información” (“Entropy and information”), in the *XVII Congreso Nacional de Filosofía*, Santa Fé, Argentina, 4-8 August. Co-authored by Marcelo Losada.

“Information and communication from a manipulability view”, in the *International Workshop: What is Quantum Information?*, Buenos Aires, Argentina, May 18-22.

2014

“Causalidad y transmisión cuántica de información” (‘Causality and quantum transmission of information’), in the *IV Jornadas de Fundamentos de Mecánica Cuántica*, Rosario, Argentina, November 27-29.

“Información, control y causación” (‘Information, control and causation’), in the *IX Encuentro de Filosofía e Historia de la Ciencia del Cono Sur*, Los Cocos, Córdoba, Argentina, September 15-19.

“Cómo interpretar el operador de inversión temporal en mecánica cuántica y teoría cuántica de campos” (‘How to interpret the temporal reversal operator in quantum mechanics and quantum field theory’), in *IX Encuentro de Filosofía e Historia de la Ciencia del Cono Sur*, Los Cocos, Córdoba, Argentina, September 15-19.

“Flecha del tiempo y flujo de información” (‘Arrow of time and flow of information’), in the *99° Reunión Nacional de la Asociación Física Argentina*, Tandil, Buenos Aires, Argentina, September 15-19.

“Información y mecánica cuántica” (‘Information and quantum mechanics’), in the *I Jornadas Nacionales de Filosofía*, Buenos Aires, Argentina, November 25-28.

2013

“El Problema de la Flecha del Tiempo en el Contexto de la Reducción de la Termodinámica a la Mecánica Estadística” (‘The problem of the arrow of time in the context of the reduction of thermodynamics to statistical mechanics’), in the *XVI Congreso Nacional de Filosofía*, Buenos Aires, Argentina, March 18-22.

“Análisis Crítico del Uso de las Nociones de Adaptación y Selección Natural en algunas Teorías Adaptacionistas del Lenguaje” (‘Analysis of the notions of adaptation and natural selection in some adaptationist theories of language’), in the *XVI Congreso Nacional de Filosofía*, Buenos Aires, Argentina, March 18-22. In collaboration with María José Ferreira and Constanza Rendón.

“Flecha del tiempo y Teoría Cuántica de Campos: decaimiento de partículas y t-invariancia” (‘Arrow of time and quantum field theory: decay of particles and t-invariance’) in *XXIV Jornadas de Epistemología e Historia de las Ciencias*, La Falda, Córdoba, October 17-19.

“Irreversibilidad y t-invariancia en el Problema de la Flecha del Tiempo” (‘Irreversibility and t-invariance in the problem of the arrow of time’), in *III Jornadas de Estudiantes de Filosofía*, Buenos Aires, October 28 – November 3.

2012

“Relaciones entre la Flecha del Tiempo en Física y la Ontología” (‘Relationships between the arrow of time in physics and ontology’), in the *VIII Encuentro de Filosofía e Historia de la Ciencia del Cono Sur*, Santiago de Chile, Chile, October 16-19.

“El Problema de la Flecha del Tiempo en Física” (‘The problem of the arrow of time in physics’), in the *II Jornadas de Estudiantes de Filosofía*, Buenos Aires, October 29 – November 2.

“Mecánica Clásica y Relatividad Especial: Espacio, Tiempo y Masa” (‘Classical mechanics and special relativity: space, time and mass’), in the *XXIII Jornada de Epistemología e Historia de las Ciencias*, La Falda, Córdoba, November 12-14.

2011 “De la Mecánica Newtoniana a la Teoría Especial de la Relatividad: Consideraciones Ontológicas acerca del Espacio y el Tiempo” (“From classical mechanics to special relativity: ontological considerations about space and time”), in the *I Jornadas de Estudiantes de Filosofía*, Buenos Aires, October 19-21.

SUMMER SCHOOLS

2015 Attendant to the *XVIII Summer School in Philosophy of Physics*, organized by University of Bologna and CIRFIS. Lecturers: Professor Harvey Brown (Oxford University) and Dan Horward (University of Nothre Dame), Cesena, Italy, Septiembre 7-12.

PARTICIPATION IN RESEARCH PROJECTS

2011 – present Member of the Group of philosophy of physics and chemistry, directed by Olimpia Lombardi and Mario Castagnino, at the Faculty of Exact and Natural Sciences of the University of Buenos Aires.

2015 – 2018 Member of the triannual project “A modal interpretation for the quantum ontology”, funded by *John Templeton Foundation*. Supervisor: Dra. Olimpia Lombardi.

2014 – 2016 Member of the biannual project “The nature of information for an informational reformulation of the modal-Hamiltonian interpretation of quantum mechanics”, funded by the *Foundational Questions Institute (FQXi)*. Supervisor: Dra. Olimpia Lombardi.

2012 – 2014 Assistant Student of Metaphysics, Faculty of Philosophy and Arts of University of Buenos Aires. Research project: “The Problem of the Arrow of Time”. Supervisor: Dra. Diana I. Pérez.

- 2011 – 2014 Member of the research project UBACyT: “Hacia una mejor comprensión de la decoherencia y una nueva interpretación de la mecánica cuántica y la teoría cuántica de campos” (‘Toward a better understanding of decoherence and a new interpretation of quantum mechanics and quantum field theory’), funded by Secretary of Science and Technology of the University of Buenos Aires. Supervisors: Mario Castagnino and Olimpia Lombardi.
- 2011 – 2014 Member of the research project “Problemas filosóficos en la interpretación de la mecánica cuántica y en su relación con la química molecular” (‘Philosophical problems in the interpretation of quantum mechanics and its relation with molecular chemistry’) (PICT 1432), funded by Agency of Scientific and Technological Promotion. Supervisor: Mario Castagnino.

FORTHCOMING ACTIVITIES AND WORK IN PROGRESS

- 2017 Three-months stay at the *Munich Centre for Mathematical Philosophy* planned for early April to June.
- 2016 My application was accepted to attend to the *4th International Summer School in Philosophy of Physics*, organized by University of Lausanne and the MCMP –LMU Munich. Black Forest, Germany, July 18-22.
- Forthcoming “La Flecha del Tiempo y el Problema de la Irreversibilidad”, article for *Diccionario Interdisciplinar Austral*. Co-authored by Olimpia Lombardi.
- Forthcoming “Problemas ontológicos de la mecánica cuántica”, article for *Diccionario Interdisciplinar Austral*. Co-authored by Sebastián Fortín and Olimpia Lombardi.

- Forthcoming Translation of the article titled “Semantic conceptions of information” by Luciano Floridi for *Diccionario Interdisciplinar Austral*.
- Forthcoming “Creatividad y ontología” (‘Creativity and ontology’) for the book “Creatividad, ciencia y tecnología”, edited by Ana Rosa Pérez-Ransanz, National Autonomous University of Mexico.
- Accepted “How to deal with truth in pluralism within philosophy of sciences: boundaries and scopes” for 6th. *Meeting of the Société des Philosophies des Sciences*. Laussane, Switzerland. Co-authored by Hernán Accorinti and Mariana Córdoba.
- Submitted “Re-establishing the time heresy: a stab wound to the ‘time-reversal invariance’ strategy” for 3rd *Annual Meeting of the International Association for the Philosophy of Time*. North Carolina, USA.
- Submitted “Quantum information or quantum coding?” for *XVII UK-European Foundations of Physics*. London, United Kingdom. Co-authored by Olimpia Lombardi.
- Submitted “What’s the deal with the arrow of time in quantum mechanics” for *XVII UK-European Foundations of Physics*. London, United Kingdom. Co-authored by Olimpia Lombardi.
- Submitted “What is there inside the Great Smoky Dragon? Delayed-choice experiments from a modal ontology of properties” for 25th. *Biennial Meeting of the Philosophy of Sciences Association*. Atlanta, USA.
- Submitted “The deflationary view of information reloaded: communication and manipulability” for 25th. *Biennial Meeting of the Philosophy of Sciences Association*. Atlanta, USA. Co-authored by Olimpia Lombardi.

- Submitted** “¿Qué puede decirnos la relatividad general sobre la flecha del tiempo?” (What can tell us general relativity on the arrow of time?), 22 pages. In peer-review by a Latinoamerican journal.
- Submitted** “No information without causation”, 25 pages. Co-authored by Olimpia Lombardi.
- In process** “On passage of time in quantum mechanics and quantum field theory, what is a time reversal operator?” (unfinished manuscript).
- In process** “Multi-located bundles: a modal ontology of properties for quantum mechanics” (unfinished manuscript).