

# Carlos Romero

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## AREAS

### SPECIALISATION

Metaphysics Philosophy of science

### COMPETENCE

Logic Epistemology Ethics

## WORK

### Postdoctoral Researcher

Institute of Philosophy, Catholic University of Valparaíso (Chile) Currently

## EDUCATION

### Ph.D. Philosophy

UNAM 2021 Mexico

Dissertation: [Modal Metaphysics Naturalised](#)

Committee: [Alessandro Torza](#), [Elias Okon](#), [Lourdes Valdivia](#)

## PAPERS

### SINGLE AUTHOR

#### Against Relationalism About Modality

*Philosophical Studies* forthcoming

#### On Explaining Necessity by the Essence of Essence

*Inquiry* forthcoming

#### Modality is Not Explainable by Essence

*Philosophical Quarterly* 2019

#### Citations:

2023 Sonica Roca-Royes, *Modality*. Cambridge University Press.  
2022 Matthew Tugby, "The Laws of Modality", *Philosophical Studies*  
2022 Gaétan Bovey, "On the Necessity of Essence", *Philosophical Studies*  
2022 Tobias Wilsch, "Modal Logicism and *De Re* Necessity", *Argumenta*  
2022 Michael Wallner, "Essence, Necessity and Non-Generative Metaphysical Explanation", *Argumenta*  
2022 William Bondi Knowles, "On Blackburn's Dilemma and the 'Antinaturalistic Core' of Necessity", *Argumenta*  
2022 Dongwoo Kim, *Necessity, essence and analyticity* (Ph.D. dissertation, CUNY)  
2021 Fabrice Correia & Alex Skiles, "Essence, Modality, and Identity", *Mind*  
2021 Jessica Leech, "From Essence to Necessity via Identity", *Mind*  
2021 Antonella Mallozzi *et al.*, "The Epistemology of Modality", *The Stanford Encyclopedia of Philosophy*  
2021 Penelope Mackie, "Essentialism and Modality", *The Routledge Handbook of Modality*  
2021 Sonia Roca-Royes, "The Epistemology of Modality", *The Routledge Handbook of Metametaphysics*  
2021 Rebecca Mason, "Social Kinds are Essentially Mind-Dependent", *Philosophical Studies*  
2021 Donnchadh O'Conaill, "Laying Ghosts to Rest", *Philosophical Studies*  
2020 Teresa Robertson Ishii & Philip Atkins, "Essential vs. Accidental Properties", *The Stanford Encyclopedia of Philosophy*  
2020 Harold W. Noonan, "From Essence to Metaphysical Modality?", *Axiomathes*  
2020 Albert Casullo, "Essence and Explanation", *Metaphysics*  
2020 Gaétan Bovey, "Essence, Modality, and Intrinsicity", *Synthese*  
2020 Michael Wallner & Anand Vaidya, "Essence, Explanation, and Modality", *Philosophy*  
2020 Michael Wallner, "The Structure of Essentialist Explanations of Necessity", *Thought*  
2020 Giacomo Giannini, "Powers for Dispositionalism: A Metaphysical Ground for New Actualism", Ph.D. Dissertation, Durham University  
2019 Justin Zylstra, "Making Semantics for Essence", *Inquiry*

**The Metaphysical Foundations of Physics (foreword to special issue)**  
*Crítica*, 2021

**La influencia del esencialismo de Kit Fine**  
*Cuadernos de Crítica*, forthcoming

**Relaciones Causales Entre Variables**  
*Selección de Variables Para la Investigación*, 2021

**¿Cómo puede contribuir la filosofía de la ciencia en la crisis del COVID-19?**  
*Scientia In Verba*, 2020

**De la naturaleza como ontología: Por un materialismo nómada**  
*Reflexiones Marginales*, 2015

**Identidad, posibilidad y esencia: Una paradoja**  
*Identidad: Metafísica y Semántica*, 2014

### CO-AUTHOR

**The Ship of Theseus Puzzle**  
*Oxford Studies in Experimental Philosophy*  
3, 2020

**Nothing at Stake in Knowledge**  
*Noûs*, 2019

**A Cross-Cultural Investigation of the**

**Alleged Intersubjective Validity of Aesthetic Judgment**  
*Mind and Language*, 2019

**For Whom Does Determinism Undermine Moral Responsibility?**  
*Frontiers in Psychology*, 2019

**Behavioral Circumscription and the Folk Psychology of Belief**  
*Thought*, 2017

**The Gettier Intuition from South America to Asia**  
*Journal of Indian Council of Philosophical Research*, 2017

## UNDER REVIEW OR IN PROGRESS

- Paper arguing against grounding-theoretic views about modality [R&R]
- Paper on chaos, modality and constraint

in quantum mechanics [*in progress*]

- Paper objecting to dispositionalism as an interpretation of quantum mechanics,

proposing constraint realism instead [*in progress*]

## EDITED SPECIAL ISSUE

### Metaphysical Foundations of Physics

📅 *Crítica* 📅 December 2021 📍 <http://critica.filosoficas.unam.mx/index.php/critica/issue/view/159>

Guest editor for a peer-reviewed special issue with invited papers by Tim Maudlin, Valia Allori, and Gustavo Esteban Romero, and an introduction by yours truly

## BOOK

**Lógica Básica**  
(in progress) Logic textbook, including propositional and quantificational logic, elementary set theory, and a little bit of statistical

reasoning. In Spanish. Latest version can be downloaded here: <http://bit.ly/2JuJxTJ>

## TALKS (SELECTED)

**2022. On Essentialist Explanations of Necessity**  
Metaphysics seminar, Brigham Young University, USA

**2022. Against Quantum Potentialities, in Favour of Constraints**  
*Philosophy of Physics*, University of Santiago, Chile

**2022. Spaces of Possibility and Modal Metaphysics**

*Ontological Questions in Science*, University of Namur, Belgium

**2020. Contra las potencialidades cuánticas**  
*Online Event in Memory of Mario Bunge*, University of Arequipa, Peru

**2019. Chaos and Modality in Quantum Mechanics**  
*Logic and Metaphysics of Science*, University of Texas at Austin, USA

**2018. Metaphysical Modal Logic—Naturalized?**  
*Metaphysical Mayhem 2018*, Rutgers, USA

**2018. Modality is not explainable by essences**  
*4th IIFs Graduate Conference*, Institute for Philosophical Research, Mexico

**2010. Metaphysical foundationalism**  
*Philosophical Celebration: Identity and Modality*, Zihuatanejo, Mexico

## VISITING

2013. Rutgers University

## GRANTS, PRIZES & RESEARCH PROJECTS (RECENT)

### GRANTS & PRIZES

**2019. Competition: Reviewing humanities books. UNAM**  
Honorable mention for reviewing Agustín

Rayo's book *The Construction of Logical Space*

**2015-2019. Funding for graduate studies**

National Science Board (CONACyT)

**2013-2019. Various travel stipends**  
CONACyT; UNAM

### RESEARCH PROJECTS

**2019-2021. Program for Research Projects, Philosophy Department, UNAM**  
Participation as academic researcher in the project *Analytic approaches in metaphysics, language and epistemology*

**gram, Institute of Philosophical Research, UNAM**  
Participation as graduate student

**2016-2018. Program for University-wide Research Projects, UNAM**  
Participation as academic researcher in

the project *Individuation in metaphysics, language and epistemology*

**2013-2015. John Templeton Foundation**  
Participated in the project *Intellectual Humility and Cultural Diversity in Philosophy*, coordinated by Edouard Machery

## SERVICE

### PEER REVIEW

Analysis, Philosophical Quarterly, Philosophers' Imprint, Philosophical Studies, Inquiry, Crítica, Theoria, Argumenta, Theorema, The Philosophical Forum, Signos Filosóficos; Various PR congresses

### CONFERENCE ORGANIZATION

2023. **International workshop on the Philosophy of Physics**

Institute of Philosophy, PUCV

2019. **The 5th IIFs Graduate Conference**

Institute of Philosophical Research, UNAM

2016. **4th Workshop of Associated Students**

Institute of Philosophical Research, UNAM

## DISSERTATIONS

### CHAIR

2021 (Undergraduate)

Jesús Rico: [A Posteriori Mathematics: Proof by Computer]

### COMITTEE

2016–2021 (Undergraduate)

Iván Rodríguez: *El estatuto epistémico de la creencia* · Angélica Pena: *Las personas en el maravilloso mundo de la persistencia* · Álvaro Enríquez: *La paradoja de la creencia y la semántica externista* · Manuel Tapia: *El principio de Kreisel en la lógica de segundo orden* · Elisángela Ramírez: *El anti-realismo sobre la necesidad a posteriori* · Rodolfo Vázquez: *Una defensa del modelo semántico Stalnaker-Lewis para condicionales contrafácticos*

· Isis Espinoza: *El empirismo constructivo contra el realismo estructural óptico* · Erick Jiménez: *Algunas consideraciones sobre el externismo semántico* · Lenin Vázquez: *El problema de las inferencias mixtas para el pluralismo ontológico* · Alberto García: *La analogía darwiniana de Popper* · Raymundo Meza: *Algunas implicaciones filosóficas del teorema de Löwenheim-Skolem* · Laura López: *La hipótesis teísta del universo afinado a la luz del ateísmo filosófico*

## TEACHING

**Currently. Logic; Contemporary Philosophy**

Institute of Philosophy, Valparaiso.

**2022–2023. Philosophy of Science (graduate seminar)**

Teaching assistant to Prof. Aldo Filomeno, Institute of Philosophy, Valparaiso.

**2021–2022. Logic; Ethics; History of philosophy**

Amado Nervo College, Mexico

**2013–2020. Metaphysics**

Philosophy Department, UNAM

**2016–2020. Logic (propositional, quantificational, set theory, informal)**

Philosophy Department, UNAM

**2017. Legal logic**

J.D. program, UNAM

**2017. Intro to Philosophy of Science**

Colegio de Mexico (Colmex)

**2015. Philosophy of Language**

Philosophy Department, UNAM

**2013–2020. Logic, Metaphysics, Epistemology, Ethics**

Refresher courses for high-school teachers of philosophy

## TRANSLATION

forthcoming. **Robert Stalnaker's Context**, Oxford University Press, 2014.

Spanish translation. Institute of Philosophical Research, UNAM

forthcoming. **Kit Fine's 'Essence and Modality'**, 1994

Spanish translation. Institute of Philosophical Research, UNAM

## OUTREACH

### YOUTUBE CHANNEL (2,110 SUBSCRIBERS)

[Course in Mathematical Logic]

<https://bit.ly/2UkHEFC>

[World Philosophy Day Special]

<https://youtu.be/DaFVVA-mnFk>

<https://youtu.be/SylXs3SsRqo>

[Elementary Concepts of Logic]

<http://bit.ly/2ZT0D1T>

[Why the coronavirus was NOT created in the laboratory | Game theory and chaos]

[Materialism and emergence in a complex world]

<https://youtu.be/-vfZZ0CpwBU>

### WRITTEN

2020. [The ethics of medical resource allocation]

*Acontecimientos*, 15 de Abril, 2020

2020. [Scepticism about the 'Swedish strategy']

*Animal Político*, 21 de mayo, 2020

2018. [Could there be a mathematical theory of truth?]

*Encuentros2050*, 14: pp. 14-17

## DISSERTATION ABSTRACT

In my dissertation I introduce, motivate and take the first steps in the realization of, the project of *naturalising modal metaphysics*: the transformation of the field into a chapter of the philosophy of science rather than speculative, autonomous metaphysics.

In the **introduction**, I explain the concept of naturalisation that I apply throughout the dissertation, which I argue to be an improvement on Ladyman and Ross' proposal for naturalised metaphysics. I also object to Williamson's proposal that modal metaphysics — or some view in the area — is *already* a quasi-scientific discipline.

Recently, some philosophers have argued that the notion of *metaphysical modality* is as ill defined as to be of little theoretical utility. In the **second** chapter I intend to contribute to such skepticism. First, I observe that each of the proposed marks of the concept, except for factivity, is highly controversial; thus, its logical structure is deeply obscure. With the failure of the "first principles" approach, I examine the paradigmatic intended applications of the concept, and argue that each makes it a device for a very specific and controversial project:

a device, therefore, for which a naturalist will find no use for. I conclude that there is no well-defined or theoretically useful notion of objective necessity other than logical or physical necessity, and I suggest that naturalising modal metaphysics can provide more stable methodological foundations.

In the **third** chapter I answer a possible objection against the *in-principle* viability of the project: that the concept of metaphysical modality cannot be understood through the philosophical analysis of any scientific theory, since metaphysical necessity “transcends” natural necessity, and science only deals with the latter. I argue that the most important arguments for this transcendence thesis fail or face problems that, as of today, remain unsolved.

Call the idea that science doesn’t need modality, “*demodalism*”. Demodalism is a first step in a naturalistic argument for modal antirealism. In the **fourth** chapter I examine six versions of demodalism to explain why a family of formalisms, that I call “*spaces of possibility*”, are (i) used in a quasi-ubiquitous way in mathematised sciences (I provide examples from theoretical computer science to microeconomics), (ii) scientifically interpreted in modal terms, and (iii) used for at least six important tasks: (1) defining laws and theories; (2) defining important concepts from different sciences (I give several examples); (3) making essential classifications; (4) providing different types of explanations; (5) providing the connection between theory and statistics, and (6) understanding the transition between a theory and its successor (as is the case with quantisation).

In **fifth** chapter I propose and defend a naturalised modal ontology. This is a *realism about modal structure*: my *realism about constraints*. The *modal structure* of a system are the relationships between its possible states and between its possible states and those of other systems. It is given by the plurality of restrictions to which said system is subject. A *constraint* is a factor that explains the impossibility of a class of states; I explain this concept further. First, I defend my point of view by rejecting some of its main rivals: constructive empiricism, Humean conventionalism, and wave function realism, as they fail to make sense of quantum chaos. This is because the field requires the notion of *objective modal structure*, and the mentioned views have trouble explaining the modal facts of quantum dynamics. Then, I argue that constraint realism supersedes these views in the context of Bohm’s standard theory and mechanics, and underpins the study of quantum chaos. Finally, I consider and reject two possible problems for my point of view.

A central concern of modal metaphysicians has been to understand the logical system that best characterises necessity. In the **sixth** chapter I intend to recover the logical project applied to my naturalistic modal metaphysics. Scientists and philosophers of science accept different degrees of physical necessity, ranging from purely mathematically necessary facts that restrict physical behaviour, to kinetic principles, to particular dynamical constraints. I argue that this motivates a *multimodal* approach to modal logic, and that the time dependence of dynamics motivates a logic of *historical* necessity. I propose multimodal propositional (classical) logics for Bohmian mechanics and the Everettian theory of many divergent worlds, and I close with a criticism of Williamson’s approach to the logic of state spaces of dynamic systems.