

# Sebastián Murgueitio Ramírez

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## *Curriculum Vitae*

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### Specialization

AOS            Philosophy of Physics, Metaphysics of Science, Philosophy of Science  
AOC            Metaphysics, Applied ethics (esp. Emergent technologies), HOPOS

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### Academic Appointments

2022-PRESENT    **Assistant Professor**, Purdue University, Philosophy Department.  
2021-2022        **Postdoctoral Research Fellow**, University of Oxford, Faculty of Philosophy.

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### Education

2015-2021        **Ph.D. in History and Philosophy of Science**, University of Notre Dame.  
Dissertation     **On the Empirical Significance of Physical Symmetries.**  
Committee: Anjan Chakravartty (advisor), Nicholas J. Teh (advisor), Don Howard, Daniel Nolan, David Wallace (external).  
2017-2020        **Masters in Physics**, University of Notre Dame.  
2009-2014        **BS in Physics**, Universidad de los Andes, Thesis: Weak Measurements and Backward Causation.  
Supervisor: Alonso Botero.  
2009-2014        **BA in Philosophy**, Universidad de los Andes, Thesis: Phil Dowe's Causation Theory and the problem of negative causation.  
Supervisor: Andrés Páez

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### Publications

#### Articles

2024 (online first) "On Symmetries and Springs," *Philosophy of Science*. <https://doi.org/10.1017/psa.2023.170> [words: 9805]  
2024 (online first) "Symmetries and Representation" (with Geoffrey Hall; I am the first author), *Philosophy Compass*. <https://doi.org/10.1111/phc3.12971> [words: 6900]  
2023 (online first) "Causation and the conservation of energy in general relativity" (with James Read and Andrés Páez), *The British Journal for the Philosophy of Science*. <https://doi.org/10.1086/727030> [words: 11630]  
2023                "The Next Generation Event Horizon Telescope Collaboration: History, Philosophy, and Culture" (Galison, P., Doboszewski, J., Elder, J., Martens, N.C.M., Ashtekar, A., Enander, J., Gueguen, M., Kessler, E.A., Lalli, R., Lesourd, M., Marcoci, A., **Murgueitio Ramírez, S.**, Natarajan, P., Nguyen, J., Reyes-Galindo, L., Ritson, S., Schneider, M.D., Skulberg, E.,

- Sorgner, H., Stanley, M., Thresher, A.C., Van Dongen, J., Weatherall, J.O., Wu, J., Wüthrich, A.). *Galaxies*, 11(1), 32. <https://doi.org/10.3390/galaxies11010032> [words: 10200]
- 2022 “A puzzle concerning local symmetries and their empirical significance,” *The British Journal for the Philosophy of Science*, 73:4, 1021-1044. <https://doi.org/10.1086/714794> [words: 8977]
- 2021 “Abandoning Galileo’s Ship: The quest for non-relational empirical significance” (with Nic Teh), *The British Journal for the Philosophy of Science*. <https://doi.org/10.1086/718494> [words: 10814]
- 2020 “Measuring Absolute Velocity” (with Ben Middleton), *Australasian Journal of Philosophy*. <https://doi.org/10.1080/00048402.2020.1803938> [words: 6036]
- 2020 “Separating Einstein’s Separability,” *Studies in the History and Philosophy of Modern Science*, <https://doi.org/10.1016/j.shpsb.2020.10.001> [words: 12473]
- 2020 “A weak values approach for testing simultaneous Einstein–Podolsky–Rosen elements of reality for non-commuting observables” (Calderón-Losada, O., Moctezuma Quistian, T.T., Cruz-Ramirez, H., **Murgueitio Ramírez, S.**, U’Ren, A.B., Botero, A., Valencia, A.), *Communications Physics*. <https://doi.org/10.1038/s42005-020-0378-3> [words: 5337]

### Book Chapters

- 2022 “On how Epistemological Letters changed the foundations of quantum mechanics,” Oxford Handbook of the History of Interpretations and Foundations of Quantum Mechanics (ed. Olival Freire) <https://doi.org/10.1093/oxfordhb/9780198844495.013.0031> [words: 8224]

### Books

- 2018 *Física Paso a Paso*, Universidad de los Andes press, 735 pages. This physics textbook (in Spanish) aims to help students transition from high school to college and improve their foundations in physics before moving into more advanced courses. ISBN: 9587747003

### Book Reviews

- 2017 One hundred years of general relativity (with Katherine Brading and Laura Wells), *Metascience*. <https://doi.org/10.1007/s11016-016-0153-y>

## Articles Under Review

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“Symmetries and Measurement.” [words: 6600]

“On the Relativity Principle” [words: 12405]

“Getting Back in Shape: Persistence, Shape and Relativity” [words: 10504]

“Sobre aviones, pelotas de tenis y la relatividad” (On airplanes, tennis balls and relativity). Status: submitted to the edited collection *Materiales y ensayos de filosofía de la ciencia y del conocimiento* (Works and essays in the philosophy of science and epistemology) (ed. Andrés Felipe López López), Universidad de San Buenaventura Press [words: 10584]

## Articles In Preparation (full drafts available)

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Dispositions and the Dynamical View.

What is the dynamical view of spacetime?

What are measurements, after all?

Counterpossible Counterfactuals.

## Presentations

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### Peer Reviewed

- 2024 (Nov.) Philosophy of Science Association Biennial Meeting, New Orleans, USA  
*A defense of formal definitions of symmetries.*
- 2024 (May.) Space, Time, and Location, Part II, University of California, Davis, USA  
*Getting Back in Shape: Persistence, Shape and Relativity (with Jack Himelright).*
- 2024 (Mar.) American Philosophical Association (Pacific Division), Portland, USA  
*Galilean Relativity, Symmetries, and Harmonic Motion.*
- 2023 (Aug.) Society for the Metaphysics of Science Conference, Halifax, CA  
*Dynamical Structures and Geometrical Dispositions.*
- 2022 (Nov.) Philosophy of Science Association Biennial Meeting, Pittsburgh, USA  
*Three Puzzles about symmetries.*
- 2022 (Nov.) Society for the Metaphysics of Science Conference, Bristol, UK  
*Two Notions of Symmetries (presented over Zoom).*
- 2021 (Nov.) Philosophy of Science Association Biennial Meeting, Baltimore, USA  
*Symmetry and Detectability as Physical Concepts (with A. Holmes, Q. Wu, N. Teh, O. Traldi).*
- 2021 (July) British Society for the Philosophy of Science, University of Kent, UK  
*On Symmetries, Models, and Representation.*
- 2019 (June) Philosophy of Logic, Mathematics, and Physics Graduate Conference, Western University, Canada.  
*What is separability ... and what is not?*
- 2018 (Nov.) Philosophy of Science Association Biennial Meeting, Seattle, USA  
*Separating Separability*
- 2018 (Aug.) 4th Society for the Metaphysics of Science Conference, Milan, Italy  
*Defending Nomologically Impossible Dispositions.*
- 2018 (May) Fifth Colombian conference on Logic, Epistemology and Philosophy of Science (ALFAN V - PHILOGICA V), Villa de Leyva, Colombia  
*What is "separability" in quantum mechanics and how was it used by Einstein?*
- 2017 (March) Pitt-CMU Graduate Student Philosophy Conference, Pittsburgh, USA  
*Problems for a counterfactual theory of causation by omission*
- 2014 (Feb.) Third Colombian Conference on Logic, Epistemology, and Philosophy of Science, Bogotá, Colombia  
*Beebe and Dowe on the Problem of Negative Causation*
- 2014 (Aug.) International Workshop on Quantum Coherence and decoherence II (IWQCDII), Medellín, Colombia  
*Coupling the continuous and discrete variables of photons: Applications to weak measurements and decoherence (presented by Juan Rafael Alvarez)*

## Invited

- 2023 (Nov.) Seminar, University of Notre Dame, South Bend, US  
*Some Reflections on the principle of relativity*
- 2023 (Nov.) Seminar, Pembroke College, University of Oxford, UK  
*Symmetries and Measurements*
- 2023 (April) Philosophy Colloquium, University of Missouri, St Louis, US  
*Dynamical Structures and Geometrical Dispositions*
- 2023 (April) Fourteenth Meeting of the Saint Louis Area Philosophy of Science Association, Southern Illinois University, Edwardsville, US  
*Dynamical Symmetries Do not Explain That Much*
- 2023 (April) Two Days of History and Epistemology of the Foundations of Quantum Mechanics, Paris, France  
*On how Epistemological Letters changed the foundations of quantum mechanics*
- 2022 (Oct.) Black Hole Initiative Foundations Seminar, Harvard University, USA  
*Causation and the Conservation of Energy in General Relativity* (presented over Zoom)
- 2021 (Nov.) Physics Colloquium, Universidad de los Andes, Colombia  
*On how Epistemological Letters changed the foundations of quantum mechanics* (presented online and in Spanish)
- 2021 (Oct.) Philosophy of Physics Seminar, University of Oxford, UK  
*On Symmetry and Representation*
- 2020 (Nov.) Max Planck Institute for the History of Science, Berlin, Germany (presented online)  
*On how Epistemological Letters changed the foundations of quantum mechanics*

## Teaching

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- 2024 (Spring) Graduate Seminar: Philosophy of Space from Aquinas to Einstein (with Jeff Brower), College of Liberal Arts, Purdue University
- 2024 (Spring) Introduction to Philosophy of Science, College of Liberal Arts, Purdue University
- 2023 (Spring) Philosophy of Science, College of Liberal Arts, Purdue University
- 2023 (Spring) Introduction to Philosophy of Science, College of Liberal Arts, Purdue University
- 2022 (Fall) SCLA 101, Cornerstone Integrated Liberal Arts, Purdue University – Two Sections
- 2022 (Spring) Graduate Supervisor, Faculty of Philosophy, University of Oxford
- 2021 (Fall) Retained Lecturer, Philosophy of Science, Pembroke College, University of Oxford
- 2021 (Fall) Graduate Supervisor, Faculty of Philosophy, University of Oxford
- 2021 (Spring) TA, Introduction to Metaphysics and Epistemology (Jeff Speaks), University of Notre Dame
- 2018 (Spring) Primary Instructor, The Ethics of Emerging Weapons and Technologies, University of Notre Dame (I taught 21 of the 29 classes, Maj. Gen. Robert H. Latiff taught the remaining 8)
- 2017 (Summer) TA, Leadership Seminar, Science Ethics and Responsibility (Pre-college program), University of Notre Dame
- 2017 (Spring) TA, The Ethics of Emerging Weapons and Technologies (Fritz Allhoff), University of Notre Dame

2015 (Spring)	Primary Instructor, Physics 1 Problems Session, Universidad de los Andes
2014 (Fall)	Primary Instructor, Supplementary Session for Physics 1, Universidad de los Andes
2014 (Fall)	Primary Instructor, Supplementary Session for Physics 2, Universidad de los Andes
2012 (Spring)	TA, Logic 1 (Tomás Barrero), Universidad de los Andes

## Public Work

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2020-2022	Main founder of the startup Studia.app ( <a href="http://www.studia.app">www.studia.app</a> ), an open-access platform for students to learn introductory college physics (mechanics, fluids, thermodynamics and circuits). My role involved: creating hundreds of physics problems, writing detailed solutions, making illustrations, developing the website, and raising funding (\$30,000 total). Thousands of students have used the platform since its creation (it is still used). The team consisted of Sebastián Murgueitio Ramírez, Stacy Sivinski, and Leonardo Uribe Castaño (I was the CEO of the startup).
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## Awards and Scholarships

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2023	Purdue ASPIRE Research Enhancement Grant, (\$2706)
2023	Purdue ASPIRE Research Enhancement Grant, (\$1580)
2022	Purdue ASPIRE Research Enhancement Grant, (\$1500)
2021	Eli J. and Helen Shaheen Graduate School Award in the Humanities (this award recognizes one outstanding graduate student from each of the four divisions of the Graduate School), University of Notre Dame
2021	Sloan Prize, HPS Program, University of Notre Dame
2019	Luksic Family Collaboration Grant (\$8494) for the project "Aid Digital Transformation at Bibliotecas UC Pontificia Universidad Católica de Chile through complementary on-site Training and Consultation work" (project in collaboration with a team led by Natalie Meyers)
2018	Graduate Student Union Conference Presentation Grant (\$250), University of Notre Dame
2018	Notebaert Professional Development Award (\$1, 809.00), University of Notre Dame
2018	Notebaert Professional Development Award (\$1, 315.00) (Declined), University of Notre Dame
2014	Best Score in the Colombian National Higher Education Exam ("Saber Pro") for physics
2013	Semestral Excellence Distinction, Universidad de los Andes
2009	Alberto Magno Scholarship (80% of the tuition of the first semester), Universidad de los Andes

## Professional Development

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2024 (Spring)	Participant of the Faculty Success Program organized by the National Center for Faculty Development and Diversity (sponsored by the College of Liberal Arts at Purdue University). This is a 10-week program, requiring an average of 4 hours per week.
2018	Pedagogy Workshop (one-credit course), University of Notre Dame
2018 (June)	Participant of the XXI International Summer School in Philosophy of Physics (on the philosophy of Quantum Field Theory), Urbino, Italy

- 2018 (July) Participant of the First Biennial Midwest Summer School in Philosophy of Physics, Chicago, USA
- 2017-2018 Ethical Leaders in STEM, National Science Foundation (\$1400), University of Notre Dame
- 2017 (June) Participant and presenter of a poster at the Solstice of Foundations, Quantum Foundations Summer School, ETH, Zurich. Poster: On the preparation independence assumption in the PBR theorem.
- 2016 Participant and presenter of a poster at the International Summer Institute in Philosophy of Physics on the Philosophy of Quantum Gravity, Williams Bay, Wisconsin, USA. Poster: On the PBR theorem

## Professional Service

### Service to Purdue University

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- 2023 (Spring) Mentor to a Colombian student in the Big Siblings Program (this is a program in which a graduate student, staff, or faculty member from Purdue will act as a mentor to Colombian students coming to Purdue as visitor scholars). Around one meeting per month with the student.
- 2022 - PRESENT Senator for CLA for the academic year.
- 2022 (Aug) Attended the Undergraduate Welcome Reception for philosophy students.
- 2022 (Fall) Attended all but one of the “Wisdom Wednesdays” organized by Samantha Ooley.

### Service to the profession

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- Referee\* *American Journal of Physics, Studies in History and Philosophy of Science, The British Journal for the Philosophy of Science, European Journal for the Philosophy of Science, Foundations of Physics, Analysis, Philosophical Quarterly, Studies in History and Philosophy of Modern Physics, Pacific Philosophical Quarterly*
- 2023 (Aug.) Paper commentator in the 2023 Society for the Metaphysics of Science Conference, Halifax. Comments on Marissa Bennet and Michael Miller’s paper “The Conventionality of Real Valued Quantities”
- 2022 - PRESENT Co-organizer of a Philosophy of Physics reading group through Zoom (with scholars from the University of Nebraska).
- 2020 (Dec.) Translator for “Ruby’s Laboratory Manual” (English to Spanish). *This is a science lab manual for children ages 5-10 old, designed by anthropology professor Cara Ocobock, with the goal of helping parents and children during the COVID-19 pandemic (<https://sites.nd.edu/cara-ocobock/outreach/rubys-laboratory-manual/>).*
- 2020 (July) Discussion Section Leader in the (virtual) Second Biennial Midwest Summer School in Philosophy of Physics
- 2019 (Nov.) Paper commentator in the 5th Society for the Metaphysics of Science Conference, Toronto. Comments on Michael Miller’s paper “Wordly imprecision”
- 2018–2020 Digitized and edited all 36 issues of the journal *Epistemological Letters* ([www.curate.nd.edu/show/ks65h992w12](http://www.curate.nd.edu/show/ks65h992w12)).
- 2018 (Fall) Co-organizer of *The Philosophy and Physics of Noether’s Theorems* (a Centenary Conference on the 1918 work of Emmy Noether), University of Notre Dame at London.
- 2017 (Aug.) Paper commentator at the 3rd Society for the Metaphysics of Science Conference, New York. Comments on Baptiste Le Bihan’s paper “All the way down into the non-spatial”

## Service to the University of Notre Dame

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- 2018–2019 Member of the *Departmental Climate Committee, University of Notre Dame.*
- 2017–2019 Mentor in the Undergraduate Mentorship in the Philosophy and Minorities Program, University of Notre Dame.
- 2018 (Spring) Organizer of the *First Graduate Student Conference on Philosophy of Physics, University of Notre Dame.*

## Languages

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Spanish	Native
English	Fluent
French	Reading (intermediate)

## References

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### **Nicholas J. Tech**

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### **Anjan Chakravartty**

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### **James Read**

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