GABRIEL TÂRZIU

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Areas of Specialization and Competence

- **AOS:** Philosophy of Climate Science | General Philosophy of Science | Philosophy of Mathematics | Epistemology
- **AOC:** Philosophy of Biology | Metaphysics of Science | Logic | Philosophy of Language

Education

- **2010:** Ph.D in philosophy | Faculty of Philosophy | University of Bucharest Thesis: *The Fallibility of Mathematics: the status of necessary truths in the context of conceptual revolutions.*
- **2005:** MA in philosophy | Faculty of Philosophy | University of Bucharest Thesis: *The mind/body relationship: back to common sense?*
- **2004:** BA in philosophy | Faculty of Philosophy | University of Bucharest Dissertation*: The realism/antirealism dispute from the perspective of the philosophy of language.*

Academic Appointments

- **Since Nov. 2026:** Postdoctoral Researcher, PI of DFG-funded project "Reactive Disinformation in Climate Science" | LMU | Munich Center for Mathematical Philosophy
- **Nov. 2025 – Oct. 2026:** Teaching Fellow | LMU | Munich Center for Mathematical Philosophy
- **Oct. 2025 – May 2026:** Postdoctoral Fellow | the SOCRATES Group | Leibniz University Hannover
- **Nov. 2024 – Sept. 2025:** Postdoctoral Fellow | LMU | Munich Center for Mathematical Philosophy

- **Nov. 2022 – Oct. 2024:** Marie Skłodowska-Curie Postdoctoral Fellow | LMU | Munich Center for Mathematical Philosophy

- **2015 / 2016:** Associate Member | Institute for Research in the Humanities | the Research Institute of the University of Bucharest (IRH-ICUB)

- **2012 / 2013:** Postdoctoral Researcher in the project "Societatea Bazata pe Cunoastere: cercetari, dezbateri, perspective" | (POSDRU/89/1.5/S/56815) | Romanian Academy | Iasi Branch

Research Stays and Visiting Positions

- **2024:** Visiting Researcher | Cambridge | Department of History and Philosophy of Science (1 week)

- **2016:** Postdoctoral Researcher | Ghent University | Centre for Logic and Philosophy of Science (3 months)

- **2015:** Visiting Researcher | LMU | Munich Center for Mathematical Philosophy (1 month)

- **2014:** Visiting Fellow in the project *A Study in Explanatory Power* | University of Duisburg Essen | Institute of Philosophy (3 months)

- **2012 / 2013:** Visiting Fellow | Vrije Universiteit Brussel | Centrum voor Logica en Wetenschapsfilosofie (3 months)

- **2012:** Visiting Fellow | LMU | Munich Center for Mathematical Philosophy (2 months)

Publications

Books

- **2022:** *Înțelegerea lumii cu ajutorul matematicii* (in Romanian, translation: *Understanding the World with the Help of Mathematics*) | Bucharest, Ro: Editura Universităţii „Alexandru Ioan Cuza"

- **2013:** *Aplicabilitatea Matematicii ca Problema Filosofica* (in Romanian, translation: *The Applicability of Mathematics as a Philosophical Problem*) | Iaşi, Ro: Editura Institutul European

Edited Special Issues

- **2026:** Understanding Climate Change: A Multifaceted Inquiry (with Borut Trpin), topical collection, *European Journal for Philosophy of Science*

Refereed journal articles

- **2026:** Beyond Representation: Machine Learning Models and the Pluralism of Scientific Practice. *Philosophy & Technology* (with Borut Trpin)

- **2025:** The Power of Knowledge. *Episteme*, 1-20

- **2024:** What does it mean, what does it take, and why is it important to understand climate change? *Humanities and Social Sciences Communications* 11(1), 1-5

- **2024:** What is the IPCC's assessment style and what shaped it? *Open Research Europe* 7(4), 172

- **2022:** Can We Have Physical Understanding of Mathematical Facts? *Acta Analytica*, 37(2), 135-158

- **2021:** How Do We Obtain Understanding with the Help of Explanations? *Axiomathes,* 31(2), 173–197

- **2019:** Some Concerns Regarding Explanatory Pluralism: The Explanatory Role of Optimality Models. *Filozofia Nauki,* 28(4), 95-113

- **2018:** Mathematical Explanations and the Piecemeal Approach to Thinking About Explanation. *Logique Et Analyse,* 61(244), 457-487

- **2018:** Importance and Explanatory Relevance: The Case of Mathematical Explanations. *Journal for General Philosophy of Science,* 49(3), 393-412

- **2018:** Can we have mathematical understanding of physical phenomena? *Theoria: An International Journal for Theory, History and Fundations of Science,* 33(1), 91-109

- **2017:** Social Constructivism and Methodology of Science. *Synthesis Philosophica,* 32(2), 449-466

- **2012:** Quantum vs. Classical Logic: The Revisionist Approach. *Logos and Episteme,* 3(4), 579-590

- **2012:** O noua filosofie a matematicii? *Symposion - Journal of Human Sciences,* 20(2), 361-377.

➢ **Contributions in books and proceedings**

- **2012:** Problems with Devitt's Version of Ontological Scientific Realism. In *Significance and Interpretation within the Knowledge Based Society*, edited by N. Gavrilut and P. Dunca, 120-131 | Iaşi, Ro: Editura Institutul European

- **2011:** Mathematics, Science and Scientific Realism. In *Knowledge and Action within the Knowledge Based Society*, edited by N. Gavrilut and P. Dunca, 73-81 | Iaşi, Ro: Editura Institutul European

- **2009:** Quine's Argument for Mathematical Realism. In *Cuvinte, Teorii si Lucruri: Quine in Perspectiva*, edited by M. Dumitru and C. Stoenescu, 237-254 | Giurgiu, Ro: Editura Pelican

➢ **Unpublished manuscripts**

- **2023:** Problems with the recent ontological debate in the philosophy of mathematics

➢ **Work in progress**

- How are ML techniques employed in climate service to transform climate-related data into actionable insights?
- Climate services and climate policies: how different is (should) decision-support science (be) from regular science?
- The roles of model hierarchies in climate science
- How can we gain understanding with the help of hierarchies?
- The role of understanding in IPCC's assessment reports

Selected Presentations

➢ **2026:**

- "The Only Earth We Have: Counterfactual Reasoning and Climate Understanding" | *LMU Sustainability Week* | November 11 | Munich, Germany
- "Understanding with Machine Learning" (joint work with Mathias Frisch) | *Ignorance, Opacity, and Dependence: Epistemic Challenges for Scientists in the Age of AI* | June 1 | Institute of Philosophy, Czech Academy of Sciences, Prague, the Czech Republic
- "Chesterton's Fence in No Man's Land: An Alternative Proposal on the New Demarcation Problem" (joint work with Doohyun Sung) | *SOCRATES Seminar* | April 23 | Leibniz Universität Hannover, Germany
- "Adaptation, Mitigation, and Trust in Climate Services" | *SOCRATES Seminar* | February 12 | Leibniz Universität Hannover, Germany
- "ML in Climate Science: Tools vs Models" | *First Hannover-Bern Workshop on the Philosophy of Climate Science* | February 9 | Leibniz Universität Hannover, Germany

➢ **2025:**

- "Complexities of Usable Climate Information: Values and Wicked Problems" | *PSA Around the World 2025* | November 1-30 | Online Event

- "The Usability Gap in Climate Science: Values, Disputes, and the Role of Scientists" | *The 10th biennial meeting of the European Philosophy of Science Association (EPSA25)* | August 27-30 | University of Groningen, Netherlands
- "Opaque Counterfactual Knowledge and Scientific Understanding: The Case of ML Models in Climate Science" | *The BSPS 2025 Annual Conference* | July 15-17 | University of Glasgow, UK
- "Rethinking the Importance of Model Hierarchies in Climate Science" | *Decoding Our Planet: The Making of Geophysics* | May 12 | The Royal Institution of Great Britain, London, UK
- "Accounting for the Role of Mathematics in Science – A (Tentative) Pragmatist Perspective" | *Workshop on Pragmatism in the Formal Sciences* | April 14-15 | Munich, Germany
- "Climate Services and Climate Policies: How Different Is (Should) Decision-Support Science (Be) from Regular Science?" | *Mini-Workshop on Policy-Relevant Philosophy of Science* | February 5 | Munich, Germany

➢ **2024:**

- "Climate Models and Climate-Scientific Understanding" | *Understanding and Assessing Climate Change* | October 28 | Munich, Germany
- "The Philosophy of Climate Change: An Epistemological Discussion" | *LMU Munich Climate School* | October 11 | Munich, Germany
- "Climate Change: When Knowledge Does Not Equal Power" | *Summer School for Widening Participation in Mathematical Philosophy* | July 23 | Munich, Germany
- "How does the IPCC evaluate understanding in climate science?" | *Workshop on Science, Politics, and Understanding in Climate Science* | March 6 | Cambridge, UK
- "The role of inconsistency in modelling complex systems" (joint with Borut Trpin) | *Interdisciplinary Workshop on Modelling Complex Systems* | March 19 | Munich, Germany
- "Understanding climate change" | *MCMP meets RCC: Values in Climate and Environmental Sciences* | February 10 | Munich, Germany

Awards, Grants, and Scholarships

- **2026**: DFG Research Grant (Eigene Stelle) for the project "Reactive Disinformation in Climate Science: Modelling Antagonistic Environments and Epistemic Responsibility," Munich Center for Mathematical Philosophy, LMU Munich, Germany
- **2025**: Research Fellowship, SOCRATES Research Group, Leibniz University Hannover, Germany

- **2024**: Conference Grant, Carl Friedrich von Siemens Foundation, for the conference "Understanding and Assessing Climate Change." Location: München-Neuhausen-Nymphenburg, Germany

- **2022:** Marie Skłodowska-Curie Postdoctoral Fellowship (Horizon 2020) for the project "Climate Models and Climate Scientific Understanding," Munich Center for Mathematical Philosophy, LMU Munich, Germany

- **2015**: EPSA Fellowship, awarded as part of the EPSA Fellowship Scheme. Host institution: the Centre for Logic and Philosophy of Science, Ghent University, Belgium

- **2014**: MCMP Visiting Fellowship, Munich Center for Mathematical Philosophy, LMU Munich, Germany

- **2012**: Research Scholarship, Romanian Academy (Iași Branch), as part of the project "Societatea Bazata pe Cunoastere: cercetari, dezbateri, perspective" (POSDRU/89/1.5/S/56815)

Event Organization

- **2026: Co-organizer of the workshop** "First Hannover-Bern Workshop on the Philosophy of Climate Science" (with Mathias Frisch and Francesco Nappo)
  February 9, Hannover, Germany

- **2025: Co-organizer of the mini-workshop** "Policy-Relevant Philosophy of Science" (with Alexander Reutlinger and Ina Jäntgen)
  February 5, Munich, Germany

- **2024: Organizer of the conference** "Understanding and Assessing Climate Change"
  October 28 -29, Munich, Germany

- **2024: Organizer of the LMU Interdisciplinary Workshop** "Modelling Complex Systems", with the participation of three climate scientists, one mathematician, and four philosophers.
  March 19, Munich, Germany

- **2023: Organizer of the symposium** "Complexity, Prediction and Understanding in Climate Science" as part of the European Philosophy of Science Association Conference (EPSA23).
  September 22, Belgrade, Serbia

- **2022: Co-organizer of the East European Network for Philosophy of Science research seminar:** online monthly seminar designed as a platform for network's members to present their work in progress. Organized together with Magdalena Małecka.

Teaching

- **Full responsibility:**
  - **Philosophical Perspectives on Progress in Science** - WS 2023/2024
    Ludwig Maximilian University of Munich (Faculty of Philosophy)
    Seminar in philosophy of science for MA-students
  - **The Philosophy of Climate Science** - SS 2023
    Ludwig Maximilian University of Munich (Faculty of Philosophy)
    Seminar in philosophy of science for MA-students
- **Interdisciplinary:**
  - **Climate Change: Processes, Modelling, and Philosophical Aspects** – SS 2026
    Ludwig Maximilian University of Munich (Faculty of Physics & Faculty of Philosophy)
    Interdisciplinary course on climate science for MA students, co-taught with climate scientists Anja Schmidt (Head of Earth System Modelling at DLR; Professor of Climate Modelling at LMU Munich; Interdisciplinary Lecturer at Cambridge University) and Hella Garny (Atmospheric scientist at LMU Munich and DLR, specializing in middle atmosphere dynamics).
  - **Climate Change: Processes, Modelling, and Philosophical Aspects** – SS 2025
    Ludwig Maximilian University of Munich (Faculty of Physics & Faculty of Philosophy)
    Interdisciplinary MA course co-taught with Anja Schmidt and Hella Garny.
  - **Climate Dynamics, Climate Modeling, Climate Change** – SS 2024
    Ludwig Maximilian University of Munich (Faculty of Physics & Faculty of Philosophy)
    Interdisciplinary MA course co-taught with Anja Schmidt and Hella Garny.
- **Teaching assistant:**
  - **The Philosophy of Mathematics** - WS 2010
    University of Bucharest (Faculty of Philosophy)
    Course in the philosophy of mathematics for BA-students

Refereeing

- Philosophy & Technology | Episteme | The British Journal for the Philosophy of Science | Philosophy of Science | European Journal for Philosophy of Science | Acta Analytica | Biology & Philosophy | Zagadnienia Filozoficzne w Nauce

Other Professional Activities

- **Since 2026:** Coordinator, *East European Network for Philosophy of Science*
- **2024 – 2026:** Deputy Coordinator, *East European Network for Philosophy of Science*

Educational and Outreach Activities

- **2026: LMU Munich Climate School**
  Designed and delivered practice module on *Climate Change and Trust in Science*.
  October 5-10, Munich, Germany
- **2025: LMU Munich Climate School**
  Designed and delivered practice module on *Climate Change and Trust in Science*.
  October 6-11, Munich, Germany
- **2025: Max Planck Institute for Mathematics in the Sciences (***IMPRS Combo IV: Path Signature - From rough path theory to algebra and geometry***)**
  Delivered two mini-courses, one on the philosophy of mathematics and one on the epistemology of AI.
  September 24-26, Leipzig, Germany
- **2024: LMU Munich Climate School**
  Designed and delivered practice module on *the Philosophy of Climate Change*
  October 7-12, Munich, Germany
- **2023: Roundtable** (in the context of EPSA23 conference) on The State of Philosophy of Science in East and Central Europe | *September 20, Belgrad, Serbia*
  Role: Panel discussion with Borut Trpin, Jaana Eigi-Watkin, Lilia Gurova, Elena Popa, Daniel Kostic, and Javier Suárez

References

- Prof. Dr. Mathias Frisch | Institut für Philosophie | Leibniz University Hannover | | E-mail: mathias.frisch@philos.uni-hannover.de
- Prof. Dr. Jean Paul Van Bendegem | Department of Philosophy and Moral Sciences | Vrije Universiteit. Brussel | E-mail: jean.paul.van.bendegem@vub.ac.be
- Prof. Dr. Stephan Hartmann | Chair and Head of the Munich Center for Mathematical Philosophy | Ludwig Maximilian University of Munich | E-mail: S.Hartmann@lmu.de