

GABRIEL TÂRZIU

Curriculum vitae

Munich Center for Mathematical Philosophy
Ludwig-Maximilians-Universität München
Fakultät für Philosophie, Wissenschaftstheorie
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Areas of Specialization and Competence

- AOS: *Philosophy of Climate Science, General Philosophy of Science, Philosophy of Mathematics, Epistemology*
- AOC: *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.” Supervisor Prof. Dr. M. Turlea).
- 2005: *MA in philosophy*, Faculty of Philosophy, University of Bucharest (Thesis: “The mind/body relationship: back to common sense?” Supervisor Prof. Dr. M. Dumitru).
- 2004: *BA in philosophy*, Faculty of Philosophy, University of Bucharest (Dissertation: “The realism/antirealism dispute from the perspective of the philosophy of language.” Supervisor Prof. Dr. M. Dumitru)

Professional Experience

- 2022 – present: Marie Skłodowska-Curie Postdoctoral Fellow (Research), LMU, Munich Center for Mathematical Philosophy.

- 2016/01/01 – 2016/04/01: Postdoctoral Researcher (Research), Ghent University, Centre for Logic and Philosophy of Science.
- 2015/01/01 – 2015/02/01: Visiting Researcher (Research), LMU, Munich Center for Mathematical Philosophy.
- 2014/07/01 – 2014/10/01: Visiting Fellow (Research) in the project *A Study in Explanatory Power*. University of Duisburg Essen, Institute of Philosophy.
- 2012/11/01 – 2013/02/01: Visiting Fellow (Research), Vrije Universiteit Brussel, Centrum voor Logica en Wetenschapsfilosofie.
- 2012/06/01 – 2012/08/01: Visiting Fellow (Research), LMU, Munich Center for Mathematical Philosophy.
- 2012/01/01 – 2013/01/01: Postdoctoral Researcher (Research) in the project *Societatea Bazata pe Cunoastere – cercetari, dezbateri, perspective* (POSDRU/89/1.5/S/56815), Romanian Academy, Iasi Branch.

Publications

1. Books

As author

- (2022). *Înțelegerea lumii cu ajutorul matematicii* (in Romanian, translation: *Understanding the World with the Help of Mathematics*). Bucharest, Ro: Editura Universității „Alexandru Ioan Cuza”.
- (2013). *Aplicabilitatea Matematicii ca Problema Filosofica* (in Romanian, translation: *The Applicability of Mathematics as a Philosophical Problem*). Iași, Ro: Editura Institutul European.

2. Refereed journal articles

- (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 Foundations 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.

3. 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. Iași, 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. Iași, 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.

4. Unpublished manuscripts

- (2023). Problems with the recent ontological debate in the philosophy of mathematics

Presentations

- "The role of inconsistency in modelling complex systems." (with Borut Trpin) *Interdisciplinary Workshop on Modelling Complex Systems*, March 19, 2024, Munich, Germany.
- "How does the IPCC evaluate understanding in climate science?" *Workshop on Science, Politics and Understanding in Climate Science*, March 6, 2024, Cambridge, UK.

- “Understanding climate change.” *MCMP meets RCC: Values in Climate and Environmental Sciences*, February 10, 2024, Munich, Germany.
- “Tackling complexity with hierarchies” *MCMP Work in Progress (WIP) Colloquium*, November 30, 2023, Munich, Germany.
- “Understanding and Progress in Climate Science” *MCMP Work in Progress (WIP) Colloquium*, June 29, 2023, Munich, Germany.
- “The role of model hierarchies in understanding Earth’s climate system” *MCMP Work in Progress (WIP) Colloquium*, November 3, 2022, Munich, Germany.
- “Model hierarchies as an important tool for understanding in climate science.” *European Philosophy of Science Association Conference*, September 22, 2023, Belgrade, Serbia.
- “Can we have physical understanding of mathematical facts?” *Explanation and Understanding within Mathematics*, December 5 - 6, 2019, Brussels, Belgium.
- “Can we have mathematical understanding of physical phenomena?” *Eighth French Philosophy of Mathematics Workshop (FPMW8 2016)*, November 3-5, 2016, Marseille, France.
- “Mathematical Explanations of Non-Mathematical Facts?” *MCMP Colloquium in Mathematical Philosophy* on January the 7th 2015, Munich, Germany.
- “Explanation, Understanding and the Role of Mathematics in Science.” *Explanatory Power III: Topics in Explanation, Dependence, and Understanding*, June 5-6, 2014, Essen, Germany.
- “Infinities in Science.” *FotFS VIII: History & Philosophy of Infinity*, September 20-23, 2013, Cambridge, England.
- “Modal Anti-Realism.” *Experience and Explanation in Knowledge Society International Conference*, February 14-17, 2013, Baia Mare, Romania.
- “Scientific Models and Mathematical Understanding.” *Unity and Diversity in Knowledge Society International Conference*, September 27-30, 2012, Iasi, Romania.

- “Scientific Realism without Mathematical Realism: Escaping the Parasite.” *SIFA Conference*, September 13-15, 2012, Alghero, Italy.
- “The Role of Aesthetic Considerations in the Development and Appreciation of Mathematical Knowledge.” *Bucharest Colloquium in Analytic Philosophy* 2012, June 1-3, 2012, University of Bucharest, Romania.
- “Mathematics and the World.” *SOPHA Congress*, May 4-6, 2012, Paris, France.
- “The Influence of Social Factors on Mathematical Practice.” *Rethinking Politics for the Knowledge Society*, December 1-4, 2011, Iasi, Romania.
- “How Far Can Scientific Knowledge Take Us?” *Significance and Interpretation within the Knowledge Based Society*, October 27-30, 2011, Baia Mare, Romania.
- “What can science tell us about mathematical objects.” *The 14th Congress of Logic, Methodology and Philosophy of Science*, July 19-26, 2011, Nancy, France.
- “Pure Versus Applied Mathematics.” *Conference of the Italian Society for Logic and Philosophy of Sciences*, December 15-17, 2010, Bergamo, Italy.
- “Mathematics, Science and Scientific Realism.” *Knowledge and Action*, December 9-12, 2010, Baia Mare, Romania.
- “What can science tell us about mathematical objects.” *The Limits of the Knowledge Society*, October 6-9th 2010, Iasi, Romania.
- “Scientific Realism without Mathematical Realism: Escaping the Parasite” *The 9th National Conference of the Italian Society for Analytic Philosophy. Truth, Knowledge, and Science*, September 23-25, 2010, Padua, Italy.
- “Quine's Way to Realism About Mathematics.” *"Word and Object" 50 years later: Colloquium in Celebration of W.V.O. Quine*, May 28-29, 2010, Rome, Italy.
- “Quine’s Argument for Mathematical Realism.” *100 Years from Quine’s Birth. Quine’ Philosophy in Retrospective and Perspective*, November 8-9, 2008, University of Bucharest, Romania.

- “Why Should the Structural Realist be Interested in Solving Wigner’s Problem?” *The Sixth European Congress of Analytic Philosophy*, August 21-26, 2008, Jagiellonian University, Krakow, Poland.

Awards

- 2015 – EPSA Fellowship. European Philosophy of Science Association.
- 2014 – MCMP visiting fellowship. Ludwig Maximilian University Munich Center for Mathematical Philosophy, Germany.

Event Organization

- 2023 – **Symposium**: “Complexity, Prediction and Understanding in Climate Science”
Organization of a symposium within the European Philosophy of Science Association Conference
Date & Location: September 22, 2023, Belgrade, Serbia.
Speakers: Wendy Parker (Virginia Tech), Charlotte Werndl (University of Salzburg & LSE), Margherita Harris (LSE & Pittsburgh), Matthias Ackermann (Leibniz Universität Hannover), Gabriel Târziu (MCMP)
- 2024 – **Interdisciplinary Workshop**: “Modelling Complex Systems”
Organization of an interdisciplinary workshop with the participation of three climate scientists, one mathematician, and four philosophers.
Date & Location: March 19, 2024, Munich, Germany.
Speakers: Thomas Birner (LMU, Fakultät für Physik), Göran Kauermann (LMU Fakultät für Mathematik), Alexander Haumann (LMU, Fakultät für Physische Geographie), Hella Garny (Deutsches Zentrum für Luft- und Raumfahrt), Gabriel Tarziu & Borut Trpin (LMU, MCMP), John Dougherty (LMU, MCMP), Tom Sterkenburg (LMU, MCMP), Naftali Weinberger (LMU, MCMP)

Teaching

1. Full responsibility:

◦ **Philosophical Perspective on Progress in Science** - WS 2023/2024

(Ludwig-Maximilians-University Munich)

Seminar in philosophy of science for MA-students

Topics: What is scientific progress? To what extent, and in which respects, is science progressive? What is science progressing towards? What makes progress possible in science? How can we recognize progressive developments in science?

◦ **The Philosophy of Climate Science** - SS 2023

(Ludwig-Maximilians-University Munich)

Seminar in philosophy of science for MA-students

Topics: the characteristics of the climate system (complexity, chaos, feedback, nonlinearity, and multiple equilibria), the role of models and computation in science (especially the role of models in explaining and understanding), the structure and function of climate models (with special emphasis on the particularities of modelling complex systems), model coupling, and model hierarchies.

2. Interdisciplinary:

◦ **Climate Dynamics, Climate Modeling, Climate Change** - SS 2024

(Ludwig-Maximilians-University Munich)

Interdisciplinary course on climate science for MA-students thought together with two climate scientists (Anja Schmidt and Hella Garny)

Topics: climate dynamics, climate modeling, climate change

3. Teaching assistant:

◦ **The Philosophy of Mathematics** - WS 2010

(University of Bucharest)

Course in the philosophy of mathematics for BA-students

Topics: the fundamental metaphysical and epistemological questions raised by mathematics, such as "what is mathematics about?" and "how do we come to know it?"

Refereeing

- Philosophy of Science, Acta analytica, Biology & philosophy, European journal for philosophy of science, Zagadnienia Filozoficzne w Nauce

Outreach

- **Roundtable** on *The State of Philosophy of Science in East and Central Europe*.
Date & Location: 20 September 2023, Belgrad, Serbia.
Role: Panel discussion with Borut Trpin, Jaana Eigi-Watkin, Lilia Gurova, Elena Popa, Daniel Kostic, and Javier Suárez
- **LMU Munich Climate School**. (Interdisciplinary summer school that brings "more than 30 of the most renowned lecturers in their fields to present their research and engage in discussions with you, the students")
Date & Location: 2024, Munich, Germany.
Role: responsible for the Practice Module on The Philosophy of Climate Change