CURRICULUM VITAE
MARKUS PANTSAR

Summary

I am a philosopher of artificial intelligence, science, mathematics, and logic, currently working as a Guest Professor at the Chair for Theory of Science and Technology, RWTH Aachen University. I was trained for my Master's degree as a mathematician and a philosopher. Since receiving my PhD at the University of Helsinki in 2009, I have established myself as a leading interdisciplinary researcher in the fields of philosophy of artificial intelligence and philosophy of mathematical cognition. I received the Title of Decent (equivalent to Habilitation) in 2017 at the University of Helsinki. I have published 39 articles in esteemed international philosophical and interdisciplinary journals, such as *Erkenntnis, Synthese, Philosophical Psychology, Review of Philosophy and Psychology, Topoi, Frontiers in Psychology, Ergo, Inquiry,* and *Philosophia Mathematica*. In addition, I have published the book *Numerical Cognition and the Epistemology of Arithmetic*, a field-defining interdisciplinary work, with Cambridge University Press. I am an experienced (26 courses) and highly-esteemed teacher, as well as a high-profile speaker (89 international talks). I have extensive experience in acquiring third-party funding and have worked as a principal investigator in research projects. With numerous international collaborations and research visits to top universities around the world (e.g. *LMU Munich, University of Amsterdam, University of California Irvine, McGill University Montreal, Macquarie University Sydney*), I have created a network of top experts.

1. PERSONAL DETAILS

Dr. Markus Pantsar
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Date: October 9th 2025

2. DEGREES

29/05/2017 – Title of Docent (equivalent to Habilitation) in theoretical philosophy
Faculty of Arts, University of Helsinki, Finland.

23/06/2009 PhD in Theoretical Philosophy
Faculty of Arts, University of Helsinki, Finland. Thesis: "Truth, Proof and Gödelian Arguments: A Defence of Tarskian Truth in Philosophy" supervised by Prof. Gabriel Sandu.

27/01/2004 Master of Arts in Theoretical Philosophy
Faculty of Arts, University of Helsinki, Finland.

3. OTHER EDUCATION AND EXPERTISE

18/05/2016 Official subject teacher's degree (philosophy and mathematics), University of Helsinki.

17/09/2007 Authorized translator (Finnish-English-Finnish), Kääntäjien tutkintolautakunta (Finnish board of translators).

4. LANGUAGE SKILLS

Finnish – native
German – good written and spoken
Swedish – good written, good spoken
Dutch – basic written and spoken
English – fluent spoken and written, official translator.
Italian – good written and spoken
French – moderate written and basic spoken
Romanian – basic written and spoken

5. CURRENT EMPLOYMENT AND POSITIONS

01/10/2022 – Guest Professor, Chair for Theory of Science and Technology (chair-holder Professor Gabriele Gramelsberger), Human Technology Center, RWTH Aachen University, Germany.

29/05/2017 – Associate Professor (Title of Docent), Faculty of Arts, University of Helsinki, Finland.

6. PREVIOUS WORK EXPERIENCE (INCLUDING VISITING FELLOWSHIPS)

01/10/2021 – 30/09/2022 Senior Fellow, Käte Hamburger Kolleg (KHK) "Cultures of Research" at RWTH Aachen University, Germany. Project: "Cognitive complexity and enculturated artificial intelligence".

01/03/2021 – 30/09/2021 Senior Grant Researcher funded by the Finnish Cultural Foundation. Project: "Epistemology of mathematics and the cognitive foundations of arithmetic and geometry". Faculty of Arts, University of Helsinki, Finland. (Principal Investigator)

01/09/2019 – 31/10/2020 Senior Grant Researcher funded by the Kordelin Foundation and the Finnish Cultural Foundation. Project "Protomathematical cognition and the epistemology of arithmetic and geometry", Faculty of Arts, University of Helsinki, Finland. (Principal Investigator)

01/08/2018 – 31/08/2019 *University researcher*
Faculty of Arts, University of Helsinki, Finland. Project: "Dependence and Independence in Logic". (PI: Gabriel Sandu)

01/09/2016 – 31/07/2018 *Post-doctoral researcher*
Faculty of Arts, University of Helsinki, Finland. Project: "Dependence and Independence in Logic". (PI: Gabriel Sandu)

(01/03/2018 – 01/06/2018) *Visiting researcher*
Institute for Logic, Language and Computation, University of Amsterdam, the Netherlands. (Invited by Jakub Szymanik)

01/09/2012 – 31/08/2015 *Post-doctoral researcher*
Faculty of Arts, University of Helsinki, Finland. Project "The Mathematical and The Empirical: A New Approach to the Epistemology of Arithmetic". (Principal Investigator)

(01/09/2013 – 01/07/2014) *Visiting researcher*

	Munich Center for Mathematical Philosophy, Ludwig-Maximilians-Universität Munich, Germany. (Invited by Hannes Leitgeb)
(28/12/2014 – 28/02/2015)	*Visiting researcher* C-ALPHA Research Center, University of California Irvine, USA. (Invited by Sean Walsh)
15/01/2012 – 15/07/2012	*Post-doctoral researcher* Department of Philosophy, University of Bucharest, Romania. Project: "An Empirically Feasible Approach to the Epistemology of Arithmetic". (Principal Investigator)
01/01/2010 – 31/12/2011	*Post-doctoral researcher* Faculty of Arts, University of Helsinki, Finland. Project: "Games and Logic". (PI: Gabriel Sandu)

7. CAREER BREAKS

01/09/2015 – 31/05/2016	Completing pedagogical studies to get qualification as subject teacher in philosophy and mathematics, 9 months (University of Helsinki, Finland).

8. RESEARCH FUNDING AND GRANTS

02/02/2021	Finnish Cultural Foundation – 60 000 €. For two-year research project "Epistemology of mathematics and the cognitive foundations of arithmetic and geometry".
27/02/2019	Finnish Cultural Foundation – 12 500 €. For research project "Protomathematical cognition and the epistemology of arithmetic and geometry".
29/10/2018	Kordelin foundation – 18 000 €. For research project "Protomathematical cognition and the epistemology of arithmetic".
15/02/2018	University of Helsinki – 9 000 €. Mobility funding for developing ERC Consolidator Grant application.
10/09/2017	University of Helsinki – 6 600 €. Mobility funding for visiting the ILLC, Amsterdam.
29/10/2016	Kordelin foundation – 1 100 €. Mobility funding for conference presentations (Workshop for the Association for the Philosophy of Mathematical Practice, University of Paris 1 Pantheon-Sorbonne and Cognition, Logic and Communication, University of Riga).
27/04/2012	Academy of Finland – 262 200 €. Three-year funding for the research project "The Mathematical and The Empirical: A New Approach to the Epistemology of Arithmetic".
30/10/2008	University of Helsinki – 3600 €. Grant for finishing doctoral dissertation.
01/04/2007	University of Helsinki – 2000 €. Grant for advancing doctoral dissertation.

Reserve positions:

25/04/2018	Academy of Finland Academy Researcher: highest grade for application (6/6), project "Proto-mathematical cognition and the enculturated epistemology of arithmetic and geometry".

21/02/2016. Helsinki Collegium for Advanced Studies, project "Proto-mathematical cognition and the enculturated epistemology of arithmetic".

9. RESEARCH OUTPUT

36 peer-reviewed and 5 other publications.

Peer-reviewed publications

1. Pantsar, M. (2025). Two Approaches to Developing Human-like Artificial Mathematical Intelligence. in Pantsar, M., Stjernfelt, F., Gramelsberger, G. & Olteanu, A. (eds.): *Philosophy of Artificial Intelligence: Optimistic and Pessimistic Views*, Springer.
2. Pantsar, M. (2025). The Need for Ethical Guidelines in Mathematical Research in the Time of Generative AI. *AI and Ethics*. doi: 10.1007/s43681-025-00660-5
3. Pantsar, M. (2025). How to Recognize Artificial Mathematical Intelligence in Theorem Proving. *Topoi*. doi: 10.1007/s11245-025-10164-w
4. Pantsar, M. & Stjernfelt, F. (2025). How Numeral Words and Symbols Shape Arithmetical Cognition. *Cybernetics and Human Knowing*, 31(3-4), 111-128.
5. Pantsar, M. (2025). Intelligence is not Deception: from the Turing Test to Community-based Ascriptions. *AI & Society*. doi: 10.1007/s00146-024-02172-y
6. Pantsar, M. & Assadian, B. (2024). Where Does Cardinality Come from? *Review of Philosophy and Psychology*. doi: 10.1007/s13164-024-00746-9
7. Pantsar, M. (2024). The Cognitive Foundations and Epistemology of Arithmetic and Geometry. *Internet Encyclopedia of Philosophy*. https://iep.utm.edu/arithmetic-and-geometry/
8. Pantsar, M. (2024). Theorem Proving in Artificial Neural Networks: New Frontiers in Mathematical AI. *European Journal for Philosophy of Science*, 14, 4. doi: 10.1007/s13194-024-00569-6.
9. Pantsar, M. (2024). Why Do Numbers Exist? A Psychologist Constructivist Account. *Inquiry*. doi: 10.1080/0020174X.2024.2305386.
10. Stjernfelt, F. & Pantsar M. (2023). Peirce's Philosophy of Notations and the Trade-offs in Comparing Numeral Symbol Systems. *Cognitive Semiotics*. doi: 10.1515/cogsem-2023-2007
11. Pantsar, M. (2023). On Radical Enactivist Accounts of Arithmetical Cognition. *Ergo*, 9, 57. doi: 10.3998/ergo.3120
12. Pantsar, M. (2023). Developing Artificial Human-Like Arithmetical Intelligence (and Why). *Minds and Machines*. 1-18. doi: 10.1007/s11023-023-09636-y
13. Pantsar, M. (2023). From Maximal Intersubjectivity to Objectivity: An Argument from the Development of Arithmetical Cognition. *Topoi*, 42, 271-281. doi: https://doi.org/10.1007/s11245-022-09842-w
14. Pantsar, M. (2023). On What Ground Do Thin Objects Exist: In Seach of the Cognitive Foundation of Number Concepts. *Theoria*, 89(3), 298-313. doi: 10.1111./theo.12366
15. Pantsar, M. (2022). On the Development of Geometric Cognition: Beyond Nature vs. Nurture. *Philosophical Psychology*, 35 (4), 595-616. doi: 10.1080/09515089.2021.2014441
16. Pantsar, M. (2021). Mathematical Objectivity, without Mathematical Objects. *Philosophia Mathematica,* 29 (3), 318-352. doi: 10.1093/philmat/nkab010
17. Pantsar, M. (2021). Bootstrapping of Integer Concepts: the Stronger Deviant-Interpretation Challenge (and How To Solve It). *Synthese,* 199 (3-4), 5791-5814. doi: 10.1007/s11229-021-03046-2

18. Pantsar, M. (2021). Descriptive Complexity, Computational Tractability, and the Logical and Cognitive Foundations of Mathematics. *Minds and Machines*, 31(1), 75-98. doi: 10.1007/s11023-020-09545-4
19. Pantsar, M. (2021). Cognitive and Computational Complexity: Considerations from Mathematical Problem Solving. *Erkenntnis*, 86, 961-997. doi: 10.1007/s10670-019-00140-3
20. Fabry, R. & Pantsar, M. (2021). A Fresh Look at Research Strategies in Computational Cognitive Science: The Case of Enculturated Mathematical Problem Solving. *Synthese*, 198, 3221-3263. Equal authors. doi: 10.1007/s11229-019-02276-9
21. Buijsman, S. & Pantsar, M. (2020). Complexity of Mental Integer Addition. *Journal of Numerical Cognition*, 6(1), 148-163. Equal authors. doi: 10.5964/jnc.v6i1.218.
22. Pantsar, M. (2019). "The Enculturated Move from Proto-Arithmetic to Arithmetic". *Frontiers in Psychology,* 10, 1454. doi: 10.3389/fpsyg.2019.01454
23. Pantsar, M. (2018). Mathematical explanations and mathematical applications. In B. Sriraman (ed.): *Handbook of Mathematics of the Arts and Sciences*, Springer. doi: 10.1007/978-3-319-70658-0_30-1
24. Pantsar, M. (2018). Early Numerical Cognition and Mathematical Processes. *THEORIA*, Vol. 33 (2), 285-304. doi: 10.1387/theoria.17682
25. Pantsar, M. (2016). The Modal Status of Contextually A Priori Arithmetical Truths. In F. Boccuni & A. Sereni (eds.): *Philosophy of Mathematics: Objectivity, Cognition, and Proof,* Springer, 67-81. doi: 10.1007/978-3-319-31644-4_5
26. Pantsar, M. (2016). The Great Gibberish: Mathematics in Western Popular Culture. In Larvor (ed.): *Mathematical Cultures: The London Meetings 2012-2014*, Springer, 409-437. doi: 10.1007/978-3-319-28582-5_23
27. Pantsar, M. (2016). Frege, Dedekind, and the Epistemology of Arithmetic. *Acta Analytica*, 31 (3), 297-318. doi: 10.1007/s12136-015-0280-x
28. Pantsar, M. (2015). Assessing the Empirical Philosophy of Mathematics. *Discipline filosofiche XXV*, 111-130. doi: 10.1400/236780
29. Pantsar, M. (2015). In Search of Aleph-null: How Infinity Can Be Created?. *Synthese,* 192 (8), 2489-2511. doi: 10.1007/s11229-015-0775-4
30. Pantsar, M. (2014). An Empirically Feasible Approach to the Epistemology of Arithmetic. *Synthese,* 191 (17), 4201-4229. doi: 10.1007/s11229-014-0526-y
31. Pantsar, M. (2012). Perspectives to Empirical Philosophy of Mathematics. In V. Petrov (ed.): *Applied and Experimental Philosophy in the Knowledge Based Society East and West,* 170-180. Source-work-ID: dc22f387-7dcc-488d-9727-3f826bd183bd
32. Pantsar, M. (2012). Missä vaiheessa matemaattinen ymmärryn syntyy? (in Finnish, English title: At What Stage Does Mathematical Understanding Arise?). In V. Viljanen, H. Siipi and M. Sintonen (eds.): *Ymmärrys,* Reports from the Department of Philosophy Vol. 25, University of Turku, 185-195. Source-work-ID: 3a81cbf8-ceca-47b5-a9e7-5ef050e0ddab
33. Pantsar, M. (2011). Mitä Gödelin epätäydellisyysteoreemoista voi päätellä filosofiassa? (in Finnish, English title: What Can We Deduce from Gödel's Incompleteness Theorems in Philosophy?). *Ajatus,* Vol. 68, Source-work-ID: 175-200. ee9583e3-035e-4ce6-bd59-d92257cb4e65

Scientific articles without peer-review

34. Gramelsberger, G., Heyen, D., Kasprowicz, D., Kerksieck, F., Pantsar, M., Venator, T & Wenz, D. (2024). Wissenschaftstheoretische Reflexionen zu Research Software Engineering. *RWTH Themen*, 1, pp. 80-83.
35. Pantsar, M. (2023). Blog entry: On Radical Enactivist Accounts of Arithmetical Cognition, *Ergo Blog.* https://ergoblog.org/markus-pantsar-on-radical-enactivist-accounts-of-arithmetical-cognition/

36. Fuller, S., Gorman, D., Dusek, V., Pantsar, M., Babich, B., Basbøll, T. & Rider, S. (2022). Twitter and the Aphoristic (Re)turn in Thought, Knowledge and Education. *Educational Philosophy and Theory*. doi: 10.1080/00131857.2022.2132937
37. Pantsar, M. (2020). Mathematical Cognition and Enculturation: Introduction to the Synthese Special Issue. *Synthese*, 197, 3647-3655. doi: 10.1007/s11229-019-02478-1

Edited collections

38. Buijsman, S., Pantsar, M. & Pozzi, G. (eds.) (forthcoming) *Epistemic Agency in the Age of AI*. Topical Collection in *Synthese*.
39. Pantsar, M., Stjernfelt, F., Gramelsberger, G. & Olteanu, A. (eds.) (2025) *Philosophy of Artificial Intelligence: Optimistic and Pessimistic Views*, Springer.
40. Pantsar, M & Dutilh Novaes, C. (eds.) (2020). *Mathematical Cognition and Enculturation*. Topical Collection in *Synthese*.

Monographs

41. Pantsar, M. (2024). *Numerical Cognition and the Epistemology of Arithmetic*. Cambridge University Press, 252p. ISBN: 9781009468886
42. Pantsar, M. (2009). *Truth, Proof and Gödelian Arguments: A Defence of Tarskian Truth in Mathematics*. Philosophical Studies from the University of Helsinki, Vol. 23, 308p. ISBN:978-952-10-5374-0

Book reviews

43. Pantsar, M. (2018). Sorin Bangu (ed.): Naturalizing Logico-Mathematical Knowledge. *The Philosophical Quarterly*, Vol. 69 (275), 432-435. doi: 10.1093/pq/pqy051
44. Pantsar, M. & Quinon, P. (2018). Caleb Everett: Numbers and The Making of Us. *Journal of Numerical Cognition*, Vol. 4 (2), 494-504. Equal authors. doi: 10.5964/jnc.v4i2.153

10. RESEARCH SUPERVISION AND LEADERSHIP EXPERIENCE

01/10/2023 –	Team supervisor in the software development project "General Isomorphic Code Analysis Tool". Computational Science Studies Lab, RWTH Aachen.
01/09/2012 – 31/08/2015	Principal Investigator in Academy of Finland Project "The Mathematical and The Empirical: A New Approach to the Epistemology of Arithmetic".

11. TEACHING MERITS

18/05/2016	Official subject teacher's degree (philosophy and mathematics, University of Helsinki.

Total of 26 university courses taught (including winter semester 2025-26).

Graduate level courses (8-30 students):

2022-2026 (4 times)	Lecture course "Introduction to the Philosophy of Science and Technology", RTWH Aachen. Includes designing syllabus and course material.
2022-2026 (4 times)	Seminar "Theories of Research", RWTH Aachen. Includes designing syllabus and course material.
2023-2025 (3 times)	Lecture course "Philosophy of Computational Sciences", RTWH Aachen. Includes designing syllabus and course material.
2023-2025 (3 times)	Seminar "Modelling for Policy", RTWH Aachen. Includes designing syllabus and course material.
2025-2026 (2 times)	Master thesis seminar in the Governance of Technology study program, RWTH Aachen, co-taught with Stefan Böschen.
2015, 2018 (2 times)	Lecture course "Modern Philosophy of Mathematics", University of Helsinki. Includes writing all course material.
2017	Seminar "Cognitive Philosophy of Mathematics", University of Helsinki, co-taught with Vadim Kulikov (Dept. of Mathematics). Includes designing syllabus.
2012	Seminar "Philosophy of Mathematics", University of Bucharest. Includes designing syllabus.

Undergraduate-level courses (84-113 students):

2025 – 2026	Seminar "Introduction to Pragmatist Philosophy", RWTH Aachen. Includes designing syllabus and course material.
2025	Seminar "Philosophy of Mind", RWTH Aachen. Includes designing syllabus and course material.
2010 – 2019 (7 times)	Lecture course "Introduction to Logic", University of Helsinki (2/7 times co-taught with Gabriel Sandu). Includes writing all course material.

12. SUPERVISION

2025-	Co-supervisor (with Samuli Reijula and Gabriel Sandu), PhD candidate (Simo Rinkinen), University of Helsinki.
2024-	Co-supervisor (with Gabriele Gramelsberger), Habilitation candidate (Dawid Kasprowicz), RWTH Aachen.
2023-	Co-supervisor (with Gabriele Gramelsberger), PhD candidate (Thomas Venator), RWTH Aachen.
2023-	Co-supervisor (with Gabriele Gramelsberger), PhD candidate (Gudrun Rohde), RWTH Aachen
2025	Supervisor, Master's thesis (Leonie Reif), RWTH Aachen.
2025-	Supervisor, Master's thesis (Aylin Simsek), RWTH Aachen.
2025-	Supervisor, Master's thesis (Tom Jackowski), RWTH Aachen.

13. ORGANISATION OF SCIENTIFIC MEETINGS AND EVENTS

16/12/2025	Workshop "Reasoning in the Age of AI: Philosophical Perspectives", RWTH Aachen. Co-organised with Dawid Kasprowicz and Daniel Wenz.
12/11/2024	Workshop "Logic and The Philosophy of Science", RWTH Aachen. Organiser.
16/05/2024 – 17/05/2024	Workshop "Epistemology of Arithmetic: New Philosophy for New Times", RWTH Aachen. Co-organised with Gabriele Gramelsberger.
22/07/2022	Symposium "Numerical cognition and enactivism," part of 3rd Joint Meeting of the Society for Philosophy and Psychology (SPP) and the European Society for Philosophy and Psychology (ESPP), Milan. Organiser.
06/04/2022 – 13/07/2022	Lecture series: Philosophy of AI, optimist and pessimist views, RWTH Aachen. Co-organised with Frederik Stjernfelt.
02/02/2022 – 03/02/2022	Workshop: Explainable AI and explanations in AI, RWTH Aachen. Co-organised with Frederik Stjernfelt.
14/05/2018 – 16/05/2018	Games for Logic and Programming Languages, ETAPS, Thessaloniki. Part of organisation team.
29/08/2014	Mathematical Cognition and its Relevance for the Philosophy of Mathematics, Bucharest. Part of ECAP8, co-organised with Sorin Costreie.

14. EXPERT POSITIONS AND REVIEWING ACTIVITIES

27/06/2025	Reviewer of research project application for Swiss National Science Foundation.
09/09/2021	PhD examiner, César dos Santos, VU Amsterdam.
14/09/2020	Reviewer of research project application for National Science Center, Poland.
22/12/2018	External Master Thesis examiner, Sumitra Vignaendra, Macquarie University, Sydney, Australia
2013 –	Peer-reviewed 40+ articles for *Analysis, Synthese, Erkenntnis, European Journal for Philosophy of Science, Philosophia Mathematica, Frontiers in Psychology, Phenomenology and the Cognitive Sciences*, *Theoria*, *Review of Philosophy and Psychology*, *Topoi, Philosophical Psychology, Philosophical Quarterly, Philosophy of Science, Journal of Numerical Cognition* and *Phenomenology and the Cognitive Sciences*.
2014 –	Peer-reviewed 20+ abstracts for talks for ECAP8, ECAP9, HaPoC25 and several other international conferences.
2015 –	Peer-reviewed 10+ articles for edited books (Routledge, Springer, Oxford University Press) and 4 book proposals (Cambridge University Press, Routledge, Springer).

15. ACADEMIC SELF-ADMINISTRATION, MEMBERSHIP IN SOCIETIES AND PROJECTS

2025 – Deputy Professorium Spokesperson, Faculty of Arts and Humanities, RWTH Aachen.
2025 – Evaluator of applications, Käte Hamburger Kolleg "Cultures of Research", RWTH Aachen.
2024 – External partner in the research project Digital Distraction: Philosophical Perspectives, University of Helsinki (PI: Kaisa Kärki).
2022 – Member of the Professorium, Philosophische Fakultät, RWTH Aachen.
2020 – 2021 Principal Investigator, Finnish Cultural Foundation projects "Epistemology of mathematics and the cognitive foundations of arithmetic and geometry" and "Protomathematical cognition and the epistemology of arithmetic and geometry".
2018 – Member of the editorial board of Frontiers in Psychology.
2016 – Member of European Society for Philosophy and Psychology.
2016 – 2019 Co-coordinator of the Research Council of Finland project "Dependence and Independence in Logic"
2015 – Member of Association for the Philosophy of Mathematical Practice.
2013 – 2016 Principal Investigator, Research Council of Finland project "The Mathematical and The Empirical: A New Approach to the Epistemology of Arithmetic

16. SHORTER INTERNATIONAL RESEARCH VISITS

27/03/2020 – 15/04/2020 University of Pavia, Italy. Invited by Andrea Sereni. POSTPONED
22/11/2019 – 22/12/2019 Macquarie University, Sydney, Australia. Invited by Richard Menary.
21/03/2019 – 21/04/2019 McGill University, Montreal, Canada. Invited by Dirk Schlimm.

17. TALKS AND VISITING LECTURES

Invited talks (53 in total):

18/06/2025 "Introducing GICAT", Extended STS Workshop, Käte-Hamburger-Kolleg, RWTH Aachen University.
26/03/2025 "The future of mathematicians, human and artificial", Conference "Cultures of Research", RWTH Aachen University.
05/03/2025 "Recognizing artificial mathematical intelligence in theorem proving", Research Seminar, University of Sydney.
28/02/2025 "The Future of MathematicalResearch in the Age of Generative AI", Workshop "Epistemic Agency in the Age of AI", Macquarie University, Sydney.
28/11/2024 "Mathematical research in the age of generative AI", Aachen-Darmstadt-Stuttgart Colloquium.
12/07/2024 "Against the time travel of social constructs", Aachen-Darmstadt-Stuttgart Colloquium, TU Darmstadt.
22/03/2024 "Commentary on Pii Telakivi: From Extended Cognition to Extended Consciousness", Expanding Minds Series, Macquarie University, Sydney.
05/03/2024 "The cultural evolution of number concepts", Philosophy Seminar, Macquarie University, Sydney.
28/02/2024 "From numerical cognition to the epistemology of arithmetic – a pre-book launch talk", Expanding Minds Series, University of Wollongong.

15/01/2024	"Arithmetic and proto-arithmetic: the need for clear conceptual distinctions in computational cognitive sciences", World Logic Day 2024, UFMG Belo Horizonte.
14/11/2023	"Arithmetic and proto-arithmetic: the need for clear conceptual distinctions in computational cognitive sciences", Seminar talk at Warsaw University of Technology.
08/11/2023	"Scaffolding as a useful notion in the cognitive sciences", Round table at the Käte Hamburger Kolleg "Cultures of Research, RWTH Aachen.
30/08/2023	"Recognising artificial mathematical intelligence", Infinity and Intensionality Seminar, University of Oslo.
23/06/2023	"Arithmetic and proto-arithmetic: the need for clear conceptual distinctions in computational cognitive sciences", CSS-HLRS-Darmstadt Colloquium, RWTH Aachen.
08/06/2023	"How numerical symbols shape arithmetical cognition", To the Symbols Themselves Conference, University of Cologne.
27/05/2023	"Recognising artificial mathematical intelligence", Munich Center for Mathematical Philosophy, LMU Munich.
05/05/2023	"Recognising artificial mathematical intelligence", Varieties of Science workshop, Bucharest.
04/05/2023	"Arithmetic and proto-arithmetic: the need for clear conceptual distinctions in research on numerical cognition", University of Bucharest.
21/04/2023	"The counting animal", Conference in Honor of Frederik Stjernfelt, Aalborg University, Copenhagen.
27/02/2023	"Recognising artificial mathematical intelligence", Philosophy Seminar, Macquarie University, Sydney.
22/12/2022	"Recognising artificial mathematical intelligence", CSS-HLRS Colloquium on Philosophy of Computational Sciences, RWTH Aachen.
16/03/2022	"Theorem proving in artificial neural networks", AiAgora talk, Technical University Delft.
24/01/2022	"Return of the cicadas: Why the prime number nymphal stages are a paradigmatic case of mathematical explanation in science – if any", CSS-HLRS Colloquium on Philosophy of Computational Sciences, RWTH Aachen.
19/01/2022	"Developing artificial human-like arithmetical intelligence (and why)", Cultures of Research – Digitalization of Research Lecture Series, RWTH Aachen.
03/12/2021	"Descriptive Complexity, Computational Tractability, and the Logical and Cognitive Foundations of Mathematics", Seminar in logic and philosophy of mathematics, University of Helsinki.
12/11/2021	"Mathematical objectivity", Philosophy of mathematics in Finland conference, Tampere. Keynote.
23/09/2021	"Mathematical naturalism", Philosophy of mathematics lecture, University of Helsinki.
11/06/2020	"Mathematical objectivity, without mathematical objects", Philosophy of Mathematics seminar, University of Pavia, Italy. Online due to COVID-19.
02/04/2020	"Early numerical cognition and mathematical processes", Philosophy of Mathematical Cognition Seminar, Ruhr-Universität Bochum, Germany. Online due to COVID-19.
06/12/2019	"A Fresh Look at Research Strategies in Computational Cognitive Science: The Case of Enculturated Mathematical Problem Solving", Culture and Cognition Reading Group, Macquarie University, Sydney.
03/12/2019	"Proto-arithmetic, number concept acquisition and mid-level cognition", Workshop on Mid-Level Cognition: Norms, Habits and Narrative, University of Wollongong, Australia.
27/11/2019	"Objectivity in Mathematics without Mathematical Objects", Macquarie University, Sydney.
23/05/2019	"From Computational to Cognitive Complexity: Considerations from Mathematical Problem Solving", Colloquium Philosophy Meets Cognitive Science, Ruhr University Bochum.
06/04/2019	"Objectivity without Objects", Ontology in arithmetic and logic workshop, UQAM, Montreal.
03/04/2019	"From Computational to Cognitive Complexity: Considerations from Mathematical Problem Solving", McGill University, Montreal.

15/05/2018 "Computational and Cognitive Complexity in Mathematical Problem Solving", Grolog colloquium, University of Groningen.
14/05/2018 "Computational and Cognitive Complexity in Mathematical Problem Solving", ILLC Talk, University of Amsterdam.
26/04/2018 "Computational and Cognitive Complexity in Mathematical Problem Solving", Munich Center for Mathematical Philosophy, LMU Munich.
03/11/2017 "Cognitive Complexity and Mathematical Problem Solving", Seminar in Philosophy of Logic and Mathematics, Helsinki.
24/03/2017 "The Cognitive Basis of Actual Infinity", Logic seminar at the Department of Philosophy, Helsinki.
02/02/2017 "Processes, Metaphors and Numerical Cognition", Philosophy research seminar, Helsinki.
30/11/2016 "The Cognitive Basis of Actual Infinity", Logic seminar at the Department of Mathematics and Statistics, Helsinki.
08/02/2015 "An Empirically Feasible Approach to the Philosophy of Mathematics", University of California Irvine, C-ALPHA talk.
30/10/2014 "An Empirically Feasible Approach to the Philosophy of Mathematics", University of Tampere research seminar.
29/08/2014 "Origins of Numerical Cognition and the Epistemology of Arithmetic," ECAP2014, Bucharest.
15/06/2013 "Empirically Feasible Epistemology of Arithmetic," Helsinki-Tartu Workshop in Theoretical Philosophy, University of Tartu.
25/06/2012 "Empirically Feasible Epistemology of Arithmetic," Bucharest Colloquium for Analytic Philosophy, University of Bucharest.
25/01/2012 "Empirical Research and the Philosophy of Mathematics," University of Bucharest.
28/05/2011 "Arithmetical Truth since Frege," Frege Colloquium, University of Bucharest.
03/11/2011 "The Empirical Study of Mathematical Knowledge," The Munich Center for Mathematical Philosophy.
14/02/2011 "Empiricism and the Philosophy of Mathematics," The Philosophy of Science Seminar, University of Helsinki.
20/10/2010 "What Can We Deduce from Gödel's Incompleteness Theorems in Philosophy?," The Philosophical Society of Finland.
27/04/2009 "Truth, Proof and Gödelian Arguments," Public examination of Doctoral Dissertation, University of Helsinki.

Peer-reviewed contributed talks to conferences and workshops (36 in total):

05/09/2025 "Can AI help us understand numerical cognition and arithmetical knowledge?", European Society for Philosophy and Psychology Conference, Warsaw.
01/09/2025 "Reliable theorem-proving AI for mathematical research", RETRAI 2025, Valencia.
07/04/2025 "The need for ethical guidelines in mathematical research in the time of generative AI", Workshop on Theorem Proving and Machine Learning, Heriot-Watt University, Edinburgh.
12/11/2024 "Logical foundations of science in the age of generative AI", workshop "Logic and the Philosophy of Science", RWTH Aachen
28/09/2024 "Peirce's philosophy of notations and the trade-offs in numeral symbol systems", Diagrams24, Münster.
19/09/2024 "Theorem proving with and by AI", Conference "The era of artificial intelligence and the merging of human and machine", University of Sassari, Alghero.
16/05/2024 "From numerical cognition to epistemology of arithmetic", Workshop "Epistemology of Arithmetic: New Philosophy for New Times", RWTH Aachen University.
22/07/2022 "On radical enactivist accounts of arithmetical cognition", 3rd Joint Meeting of the Society for Philosophy and Psychology (SPP) and the European Society for Philosophy and Psychology (ESPP), Milan.

15/06/2022	"How numerical symbols shape arithmetical cognition", The 4th Conference of the International Association for Cognitive Semiotics, Aachen.
02/02/2022	"Theorem proving in deep artificial neural networks", Workshop: Explainable AI and explanations in AI, RWTH Aachen.
25/08/2020	"The Feedback Loops Linking Mathematical Practices and Cognitive Tools: Considerations on Cognitive Innovation", ECAP10, Utrecht, The Netherlands. With Regina E. Fabry. Cancelled due to COVID-19.
23/09/2019	"The Interplay of Biological and Cultural Components in the Acquisition of Natural Number Concepts", Mind: Coevolution of Biology and Culture, Cres, Croatia.
03/09/2019	"A Fresh Look at Research Strategies in Computational Cognitive Science: The Case of Enculturated Mathematical Problem Solving", EuroCogSci 2019, Ruhr-Universität Bochum (with Regina Fabry).
06/08/2019	"Complexity of Mathematical Cognitive Tasks", 16th International Congress of Logic, Methodology and Philosophy of Science and Technology, University of Prague.
22/05/2019	"Cognitive and computational complexity in mathematical problem solving", Simplicities and Complexities, University of Bonn.
29/03/2019	"How Cognitive Tools Transform our Cognitive Capacities in Mathematical Problem Solving (and Beyond): Cumulative Cultural Evolution and Enculturation", Retuning Cognition with a Pair of Rocks, University of Pittsburgh.
30/10/2018	"The Cognitive Role of Embodied Symbol Manipulation in Mathematical Problem Solving", Getting Real About Words And Numbers, Antwerp (with Regina Fabry).
11/06/2018	"Of Levels, Competence, and Performance: Towards an Explanation of Enculturated Mathematical Problem Solving", Models of Explanation, Turin (with Regina Fabry).
05/11/2017	"Cognitive Complexity and Mathematical Problem Solving", Ninth French Philosophy of Mathematics Workshop, Nancy.
11/10/2017	"Cognitive Complexity and Mathematical Problem Solving", Third International Conference on Philosophy of Mind, Braga.
22/09/2017	"Cognitive Complexity and Mathematical Problem Solving", Fourth Philosophy of Language and Mind conference, Bochum.
22/08/2017	"What is Arithmetic", Ninth European Conference of Analytic Philosophy, Munich.
19/09/2016	"Early Numerical Cognition and Mathematical Processes", Workshop: From basic cognition to mathematical practice, Seville.
11/08/2016	"Mathematical Cognition as Enculturation", European Society for Philosophy and Psychology, St. Andrews.
10/12/2015	"Number-cognition: Bootstrapping of the Exact Number Concepts", Symposium of Cognition, Logic and Communication, Riga.
03/11/2016	"Metaphorical Thinking in Mathematics", APMP Colloquium, Paris.
05/08/2015	"From Proto-arithmetical to Arithmetical: the Four Roles Language Plays in the Development of Arithmetical Thinking", CLMPS, Helsinki
01/06/2014	"Empirically Feasible Epistemology of Arithmetic," Philosophy of mathematics: objectivity, cognition, and proof, Milan.
11/04/2014	"The Great Gibberish: Mathematics in Western Popular Culture," Mathematical Cultures 3, London.
20/09/2013	"In Search of Aleph-null – How Infinity Can Be Created," Foundations of the Formal Sciences VIII: History and Philosophy of Infinity, Cambridge.
10/11/2012	"Foundational Matters in Higher Mathematics Education," Cultures of Mathematics and Logic, Sun Yat-Sen University, Guangzhou.
23/03/2011	"Commentary on Hannes Leitgeb: 'A Theory of Truth for Propositions,'" Truth Be Told Workshop, Amsterdam.
10/01/2011	"At What Stage Does Mathematical Understanding Arise?," Colloquium of The Philosophical Society of Finland, Turku.

04/06/2010 "Perspectives to Empirical Philosophy of Mathematics," XXVI Varna International Philosophical School, Sofia.
18/03/2010 "Epistemic Actions," Seminar of Logic, Helsinki, March 2010.
12/03/2008 "The Meaning of Logical Connectives," Post-graduate Seminar, Helsinki.
06/11/2007 "Truth and Proof," Post-graduate Seminar, Helsinki.

18. AWARDS AND RECOGNITIONS

Philosophia Mathematica, most read paper 2021-2022.
Theoria, top-cited paper 2022-2023.

19. REFERENCES

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Gabriel Sandu, University of Helsinki (gabriel.sandu@helsinki.fi)
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