

Alexander Niederklapfer

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Philosopher with interdisciplinary research interests and backgrounds in the foundations of physics, philosophy of science, metaphysics, and philosophy of AI and language as well as practical experience in mathematics and IT.

Research Interests

Areas of Specialisation

Philosophy of Physics
Philosophy of Science
Metaphysics

Areas of Competence

Logic
Epistemology
Philosophy of AI

University Education

- Sept 2021–
Sept 2026
(expected) **Philosophy, PhD**, Department for Philosophy, Logic and Scientific Method, London School of Economics and Political Science (LSE), United Kingdom.
Supervisors: Prof. Bryan Roberts, Prof. Miklós Rédei. Project on the Metaphysics of Particle Physics.
- Oct 2017–
Mar 2020 **Logic and Philosophy of Science, Master of Arts**, Munich Center for Mathematical Philosophy (MCMP), Ludwig-Maximilians-University Munich (LMU), Germany.
Final Grade: 1.32, equivalent to first class honours. MA thesis on *Symmetries and Particles*, supervised by: Dr. Neil Dewar, Dr. Erik Curiel, grade 1.3:
On the constitution of particles by symmetries in modern physics with a special focus on structural realist as well as Neo-Kantian approaches.
- Oct 2013–
Jul 2017 **General and Indo-European Linguistics, Bachelor of Arts. Minor subject: Philosophy**, Ludwig-Maximilians-University Munich (LMU), Germany.
Final Grade: 1.57, equivalent to upper second class honours. BA Thesis *Development of the Greek Perfect Tense* supervised by PD. Dr. Peter-Arnold Mumm, grade 1.0.
- Oct 2010–
Jul 2013 **Technical Mathematics, Bachelor of Science**, Johannes Kepler University Linz (JKU), Austria.
Weighted grade average: 1.68, equivalent to upper second class honours. BSc Thesis *Construction and Classification of Clifford Algebras*, supervised by A. Univ.-Prof. Dr. Michael Schmuckenschläger, awarded highest grade ("Sehr Gut").

Major Grants and Scholarships

- 2025–2026 **PhD Scholarship**, *Partial Funding for final year*, Goodenough College.
- 2025–2026 **Final year fund**, *Partial Funding for final year*, London School of Economics and Political Science.
- 2021–2025 **PhD Studentship**, London School of Economics and Political Science.
Full Funding for PhD project in Philosophy of Physics including a maintenance grant. Awarded based on outstanding academic merit and potential.
- 2015 **Study Scholarship**, *Studienstiftung des deutschen Volkes*.
Competitive national award, based on outstanding academic merit and potential.

2012 **Merit Scholarship for outstanding students**, *Faculty of Engineering and Natural Sciences*, Johannes Kepler University, Linz.

Writings

Papers under Review

What is Fundamental in Fundamental Physics?, submitted to *Philosophy of Science*. I argue that particle physics cannot give a unique account of what is fundamental in the material world because there are several, disagreeing procedures for decomposing quantum systems into their components.

Papers in Preparation

Operational Localisation of Particles in Quantum Field Theory.

I propose a mathematically rigorous operational particle picture to resolve the conflict between the detection of seemingly localised particles and the mathematical restrictions prohibiting strictly localised states in relativistic quantum field theories.

Fundamentality and Elementarity, *co-authored with Prof. Miklós Rédei*.

We propose an abstract framework to analyse the notions of fundamentality and elementarity in mathematised scientific theories and connect it to recent discussions in the metaphysics literature on the notion of fundamentality.

Talks

Invited Talks

Jun 2025 **Bonn History and Philosophy of Physics Research Seminar**, *Localisation of Particles in Quantum Field Theory*, June, 24th.

Refereed Talks

- Jul 2025 **British Society for Philosophy of Science (BSPS) Annual Conference**, *Localisation of Particles in Quantum Field Theory*, Glasgow, 15–17 July.
- Jun 2025 **22nd European Conference on Foundations of Physics**, *Localisation of Particles in Quantum Field Theory*, Gdańsk, 30 June–2 July.
- Mar 2025 **DPG Frühjahrstagung** (Annual conference of the Philosophy of Physics Group of the German Physical Society), *Can we measure local particles?*, Bonn, 10–14 March.
- Jun 2024 **Physics and Reality**, *What is Fundamental in Fundamental Physics?*, Helsinki, 4–6 June.
- Mar 2024 **DPG Frühjahrstagung** (Annual conference of the Philosophy of Physics Group of the German Physical Society), *What is Fundamental in Fundamental Physics?*, Berlin, 18–22 March.
- May 2020 **international conference. Students of Analytic Philosophy (ic.SoAP)**, *Elementary Particles as Structures*, Online, May 2nd.

Teaching

Class Teaching

- 2023–2024 **Philosophy of Science**, *GTA*, London School of Economics and Political Science. Three weekly classes of around 15 students for the lectures by Prof. Rédei in autumn and Prof. Frigg in winter term, marking of formative and summative essays, office hours.
- 2022 **Introduction to Logic**, *GTA*, London School of Economics and Political Science. Three weekly classes of around 15 students for the lectures by Dr. Hudetz in autumn term, marking of formative and summative essays, office hours.

- 2015 **Functional Analysis I, TA**, Ludwig-Maximilians-University, Munich.
Weekly exercise classes of around 30 students in summer term for the lecture by Prof. Martin Fraas, PhD, marking of weekly exercise sheets.

Certifications

- Dec 2023 **Associate Fellowship of the Higher Education Academy (AFHEA)**, *Advance HE*.
Following the successful completion of the *Principles of Teaching in Higher Education* programme at the London School of Economics and Political Science.

Summer Schools

- Apr 2025 **EMS-IAMP Spring School in Mathematical Physics, York (UK)**, Symmetry and Measurement in Quantum Field Theory.
Awarded full funding by the COST action RQI.
- Jul 2024 **Hamburg/Vienna Summer School on Fundamentality, Vienna (AT)**, Fundamentality in Metaphysics and Philosophy of Science.
Awarded partial funding by the summer school.
- Jul 2024 **Philosophy of AI Summer School, Paris (FR)**, Themes in the Philosophy of Mind, Language, Metaphysics, and Epistemology of AI.
Presented a poster on “Can Natural Language Models be Part of Linguistic Communities?”
- Jun 2018 **XXI. International Summer School in Philosophy of Physics, Urbino (IT)**, On Philosophy of Quantum Field Theory.

Service

Referee for: *Philosophy of Physics*.

- since Oct 2024 **Co-organiser of the Conjectures and Refutations seminar series**, *Department of Philosophy, Logic, and Scientific Method*, London School of Economics and Political Science.
- since Oct 2024 **Dean’s Special Advisor on Cross-Disciplinary Projects on the Academic Committee**, *Goodenough College*, London.
Organising the academic programme at the College.
- Mar 2023–
Jul 2024 **PhD representative in the working group on Artificial Intelligence and Education**, *London School of Economics and Political Science*.
Representing PhD students in working group on the impact of recent generative AI developments on education and assessment. Working group submitted recommendations for implementation across the School.
- 2023–2024 **Chair of the Members Council**, *Goodenough College*, London.
Head of the student representation.
- Feb 2022 & 23 **Judge at The Ethics Cup**, *London Regional*, at King’s College London.
- 2022–2023 **Co-Chair on the Members Council for Facilities and Services**, *Goodenough College*, London.
Member of the student representation.
- 2022–2023 **PhD Student representative**, *London School of Economics and Political Science*.
To the Department of Philosophy, Logic, and Scientific Method as well as school-wide as departmental representative.

Selected Non-academic Information

Civic Recognition

Jun 2025 **Freedom of the City of London**, City of London and Goodenough College.
Awarded by the City of London and conferred by The Rt Hon The Lord Mayor after successful completion of the City Scholar's Programme.

Industry Experience

Mar 2018–
Jun 2025 **Cloud Architect**, *XIBIX Solutions GmbH*, part time Mar 2018–Mar 2020, remote and part time since Sept 2021.

Consulting small businesses and large enterprises, designing and implementing cloud infrastructure. (Azure, Terraform, Kubernetes, development in C# on .NET)

2016/04–2017/04 **Working Student IT**, *SR Huebner Munich*.

Design and implementation of enterprise IT solutions.

2015/10–12 **2nd Assistant Director**, *“Laim und die Zeichen des Todes”*, 90min. ZDF (German state TV) TV movie, Networkmovie GmbH, Internship.

Managing and directing extras.

Language Skills

German Native speaker.

English Highly proficient in both spoken and written English.

Latin Reading and translation skills.

Ancient Greek Reading skills.

Italian Basic communication skills.

Modern Greek Basic communication skills.