Postdoctoral / PhD Position(s) in Philosophy of Science / Philosophy of Physics

The Budapest Research Group on the Philosophical Foundations of Science invites applications for up to **one postdoctoral** or **two PhD positions** in the philosophy of modern physics, funded by the NKFIH **ADVANCED GRANT 152165 – "Philosophical Foundations of Modern Physics: Probability, Causality, and Emergence"** (lead by Gábor Hofer-Szabó, host institute: ELTE Research Centre for the Humanities, Budapest, Hungary).

The group is based in Budapest and is internationally active in the foundations of physics and formal philosophy of science. More information about our mission and ongoing work is available on our website: https://lps.elte.hu/bpgroup/mission.html .

Position(s) and Salary

Option A: 1 Postdoctoral Researcher

- Gross salary: 10,476,000 HUF/year (approx: €27,400/year)
- Initial contract: 1 year, renewable subject to satisfactory performance and integration.
- Intended maximum extension: up to 31 December 2029.

Option B: 2 PhD Students

- Gross salary: 5,238,000 HUF/year (approx: €13,700/year) each
- Initial contract: 1 year, renewable subject to satisfactory performance and integration.
- Intended maximum extension: up to 31 December 2029.

The final decision between hiring one postdoc or two PhD students will depend on the applicant pool and overall fit with the research group and project needs.

Start Date and Duration

- **Expected starting date:** 1st of September, 2026.
- **Initial term:** 1 year (renewable subject to satisfactory performance and integration, see above).

Project and Research Environment

Our research group consists of philosophers of science with strong backgrounds in **physics and/or mathematics** . The overarching aim of the **ADVANCED GRANT 152165** project is to provide a **rigorous, formally informed analysis** of the philosophical foundations of modern physics. We explore the connections between **probability, causality, determinism, quantum mechanics, thermodynamics, emergence**, and broader issues in the metaphysics and epistemology of science. The group members have a strong record of publications in leading journals and books with major academic presses, as well as extensive international collaborations and conference activity.

The project is structured into **six interrelated research strands**:

1. **Causality, Contextuality, and Realism in Quantum Mechanics**

    - Generalised common-cause explanations in non-classical event spaces
    - Quantum correlations and locality
    - Analysis of the PBR theorem and its implications for ψ-ontic/ψ-epistemic interpretations of quantum theory

2. **The Common Cause Principle and Its Limits**

    - Conceptual and formal analysis of the Common Cause Principle in physics and philosophy
    - Systematization of cases where the principle may fail
    - Connections to the direction of time
    - Applications to the philosophy of the special sciences

3. **Emergence, Complexity, and Category-Theoretic Frameworks**

    - Emergent phenomena in physics, including thermodynamic phase transitions and properties that arise only in infinite limits
    - Formal definitions of emergence using category theory
    - Implications for scientific realism

4. **Bayesian Learning and Its Limitations**

    - Bayesian models of scientific inference and decision-making
    - Investigation of probability measures not reachable by Bayesian conditioning (“Bayesian blind spots”)

5. **Operationalism and Logical Structure of Scientific Theories**

- Re-examining classical and contemporary operationalist approaches
- Connections between operationalism and first-order logic
- Implications for how we understand the structure and semantics of physical theories

6. **Physics and the Special Sciences**

   - Relations between physical theories and the special sciences, such as biology, psychology, and economics
   - Supervenience relations between different theoretical descriptions
   - Development and applications of the group's dynamical systems account of causality

The group's previous research has had an impact on debates about **common causal explanation, local causality, statistical inference, and physicalism**, supported by multiple successive NKFIH grants. The ADVANCED GRANT builds on this foundation to consolidate **Budapest** as a leading hub in the **philosophy of physics in Europe** and to foster closer ties between the Hungarian physics and philosophy communities.

Duties and Expectations

The successful candidate(s) will:

- Carry out **independent and collaborative research** in one or more of the project's six main areas.
- Engage actively with the **formal and conceptual** dimensions of the philosophy of modern physics.
- Contribute to the **publication output** of the group (articles in peer-reviewed journals, book chapters, etc.).
- Present work at **international conferences, workshops, and seminars** .
- Take part in the **intellectual life of the group**, including reading groups, internal workshops, and collaborative research activities.
- (For PhD positions) Work toward a **doctoral dissertation** closely aligned with the themes of the project and the group's expertise.

There are no teaching obligations associated with the position.

Selection Criteria

We welcome applications from **both Hungarian and international candidates** (good working knowledge of English, however, is essential). The **primary criterion** for selection is the **likelihood of a strong, long-term fit** with the research group, judged especially by:

- The candidate's **research interests and background** in relation to our ongoing work and the six project strands.
- Their potential to **collaborate effectively** with group members over an extended period.
- Their capacity to **contribute to and benefit from** a formally oriented, interdisciplinary environment at the intersection of philosophy, physics, and mathematics.

Additional criteria include:

For the **postdoctoral position** :

- A PhD in philosophy, philosophy of science, physics, mathematics, or a closely related field, completed by the start date of the contract, but obtained no earlier than 30th of August, 2019.
- A strong research record relative to academic age (publications, talks, etc.).

For **PhD positions** :

- A Master's degree (or equivalent) in philosophy, philosophy of science, physics, mathematics, or a closely related field, completed by the start date of the contract.
- Evidence of research potential (e.g. an excellent Master's thesis, research papers, or other substantial written work).

- Being an active member of a Ph.D. program at the starting date (1st of September, 2026). We note that members of the Budapest Research Group on the Philosophical Foundations of Science are active in the Ph.D. program in Logic and Philosophy of Science at ELTE – interested students should get in touch with the head of the Ph.D. program for an opportunity to enroll (for details, see https://lps.elte.hu/logic/PhD-LogPhilSci/index.html)

For all positions, background in at least one of **philosophy, physics, or mathematics**, and an interest to engage with the **formal aspects** of the project, is essential.

Language: The working language of the group is **English**; knowledge of Hungarian is **not required**.

Location and Work Conditions

- **Location:** Budapest, Hungary (ELTE RCH building)
- We offer a stimulating international research environment, close collaborations with researchers in philosophy of physics and formal philosophy, and opportunities for extended academic visits and conference travel, subject to project resources.

Application Materials

Applicants should submit a Cover letter/Research proposal, CV, and Writing sample in **a single PDF file** (in English, or in Hungarian):

1. **Cover letter** and **Research proposal** (1–4 pages)
- Indicating whether you are applying primarily for the PhD or the postdoc positions (or both)
- Explaining the connection to our six project areas, and why you see yourself as a good long-term fit for our group
- Outlining a proposed research project or a research direction that would fit within one or more of the project strands

2. **Curriculum Vitae**
- Including list of publications, talks, academic honours.

3. **Writing sample**
- One substantial research paper, chapter, or thesis excerpt (in English or in Hungarian), preferably related to philosophy of physics, formal epistemology, metaphysics of science, or closely connected fields.

In addition, Applicants should ask two Referees to submit letters of reference (to the same email address, listed below):

4. **Two letters of reference**
- Referees should be familiar with your research work and potential.

Application Deadline and Method

- **Application deadline:** February 15, 2026.
- **Application method:** Email to: gyenis.balazs [at] abtk.hu

Shortlisted candidates may be invited for an **online interview**.

Contact and Further Information

For informal inquiries about the position(s) or the research group, please contact: Balázs Gyenis. Email: gyenis.balazs [at] abtk.hu

Further information about the Budapest Research Group on the Philosophical Foundations of Science can be found on our website:
https://lps.elte.hu/bpgroup/mission.html

This document can be found at:
https://lps.elte.hu/bpgroup/vacancy.pdf