



Center for Theoretical Physics  
Polish Academy of Sciences

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HR EXCELLENCE IN RESEARCH

PLB/04/2026

## FORM FOR EMPLOYERS

INSTITUTION: **Center for Theoretical Physics, Polish Academy of Sciences**

CITY: **Warsaw**

POSITION: **post-doctoral position**

DISCIPLINE: **physics**

POSTED: **2026-04-01**

EXPIRES: **2026-05-15**

WEBSITE: <https://www.cft.edu.pl>

KEY WORDS: **thermodynamics, information theory, quantum mechanics, computation, quantum entanglement**

## Post-doc (f/m/x)

**Ref Number: PLB/04/2026**

**Location:** Warsaw, Poland

**Salary:** approx. PLN 10,889.50 gross/month (approx. PLN 8,041 net/month)

**Number of positions available:** 1

**Work Arrangement:** Hybrid

The role is available from 2026-07-01 for the period of 2 years with the possibility of extension

### Important Dates:

- Application deadline: 2026-05-15
- Candidates will be informed about the results by 2026-06-12.

### Founding Source:

The project "*Thermodynamics of Information Processing: From Theory to Applications*" is funded by the **National Science Centre (NSC)** (contract number: **UMO-2023/51/D/ST2/02309**).

## About us

The Center for Theoretical Physics of the Polish Academy of Sciences (CTP PAS) is a research institute focused on the study of theoretical physics. The CTP is located in Warsaw, Poland, and was founded in 1980.

The CTP PAS conducts research in various fields of physics, including quantum information, space and gravity research, semiconductors, and atomic gases. The Institute's strategy is to employ the strongest scientists, giving them the freedom to



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conduct their research. This has resulted in the CTP's high standing in Poland, world-class publications (in *Nature* and *Science*), a large number of grants (approximately 30 projects), and participation in international consortia. In terms of citations per researcher, CTP PAS ranks among the leading institutions in Polish physics.

The CTP PAS also hosts a number of scientific events, including seminars, workshops, and conferences, which are open to the public. The Institute also creates educational content accessible on its official [YouTube](#) channel.

## About the role

We are seeking a Postdoctoral Researcher (Adiunkt) to join the research group at the Center for Theoretical Physics PAS, led by Dr. Eng. Patryk Lipka-Bartosik, within the project “*Thermodynamics of Information Processing: From Theory to Applications*”.

The project aims to bridge fundamental research with potential technological applications in information thermodynamics — an interdisciplinary field at the intersection of information theory, stochastic thermodynamics, and quantum physics. The research will focus on three main directions:

- Thermodynamic computing: developing physics-inspired alternative models of computation that aim to reduce energy consumption in information processing and machine learning (e.g., arXiv:2308.15905);
- Quantum phenomena in information processing: exploring how quantum effects can be utilized to process information with improved energetic efficiency (e.g., arXiv:2408.06418);
- Optimization of thermodynamic protocols: designing thermal machines that exploit collective quantum phenomena to achieve higher energy efficiency (e.g., arXiv:2411.00944).

### Main responsibilities:

- Designing independent research projects;
- Developing and performing analytical calculations and numerical simulations;
- Coordinating collaborations with other research groups;
- Writing and publishing scientific papers;





- Presenting research results at conferences;
- Mentoring MSc and PhD students.

**Additional responsibilities** may include assisting with maintaining the group's website or organizing seminars.

Enquiries regarding the role or the recruitment process can be addressed to Dr. Patryk Lipka-Bartosik ([lbartosik@cft.edu.pl](mailto:lbartosik@cft.edu.pl)).

If you require reasonable adjustments or a more accessible format to apply for this position online, please contact [recruitment@cft.edu.pl](mailto:recruitment@cft.edu.pl).

## About you

### Essential qualifications, experience and knowledge

1. PhD degree obtained not earlier than in 2019 (or planned defense before the contract start date);
2. Good knowledge of analytical methods and/or numerical simulations;
3. Very good command of English, both written and spoken.

### Essential skills and abilities

- Experience in machine learning;
- A strong publication record in high-impact scientific journals;
- Experience in international collaboration.

### Desirable skills and abilities

- Experience in stochastic and/or quantum thermodynamics and/or machine learning.

## What we offer

- Full-time fixed-term employment contract (2 years, renewable)
- Salary: approx. PLN 10,889.60 gross/month (approx. PLN 8,041 net/month). The indicated amount includes the length-of-service allowance and constitutes the Employee's basic salary. In addition to the basic salary, the Employee may be entitled to bonuses, awards, or other components of remuneration, in accordance with the Remuneration Regulations in force at the Institute. The remuneration shall







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We stay in touch with candidates throughout the entire process, ensuring that interviews take place in a friendly atmosphere, and providing feedback after the interviews. We approach each candidate individually, also considering the needs of people with disabilities.

We appreciate all feedback received after the recruitment process. It motivates us to improve our recruitment efforts.

## **Our commitment to Equality, Diversity and Inclusion**

The CTP PAS operates in an all-inclusive environment irrespective of personal, physical, or social characteristics. Teamwork is highly valued, individual strengths are recognised and appreciated, and we are committed to advancing the careers of everyone.

Equality, respect, and openness are fundamental values in an academic environment, where diversity is essential. We strive to provide a safe and inclusive space for everyone who is part of our scientific community.

The CTP PAS has regulations for reporting violations of law and protection of whistleblowers.



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