Center for Theoretical Physics
Polish Academy of Sciences
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Warsaw, January 09, 2025

Competition for one postdoctoral fellowship at the Center for Theoretical Physics, Polish Academy of Sciences

The Director of the Center for Theoretical Physics PAS (CTP PAS) invites applications **for one postdoctoral fellowship** at the CTP PAS, financed from the project **"Towards a useful Quantum Advantage" TouQan** (https://touqan.eu/) , financed by the National Science Center (NCN), registration No. 2023/05/Y/ST2/00140 (ERA-NET Cofund QuantERA II).
PI of the project is dr hab. Michał Oszmaniec.

We are seeking a candidate with a recognized doctoral degree obtained no earlier than January 1, 2018. Eligible candidates must have earned their doctoral degree either in the year of employment in the project or within seven years prior to January 1 of the year of employment in the project.
This seven-year period may be extended by the duration of any documented long-term (over 90 days) sick leave or rehabilitation benefits taken during this time due to incapacity for work. Additionally, it may be further extended by the number of months spent on parental or childcare leave granted in accordance with the rules specified in the Labor Code. For women, the period may also be extended by 18 months for each child born or adopted if this method of accounting for career breaks is more advantageous.
This is in line with the guidelines outlined in the Annex to the terms and conditions and the regulations for awarding funds for tasks financed or co-financed in international competitions organized by the National Science Centre in multilateral cooperation under UNISONO, as adopted by NCN Council Resolution No. 28/2022 of March 2, 2022 (https://www.ncn.gov.pl/sites/default/files/pliki/uchwaly-rady/2022/uchwala28_2022-zal1_ang.pdf4).
We are looking for a candidate with strong expertise in the fields of quantum computing, quantum information theory, and mathematical physics. Basic knowledge of quantum computational supremacy theory and probability in high-dimensional spaces will be an additional asset.

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The project is carried on in a dynamic, mixed theoretical consortium, which, apart from CFT PAN, includes Instituto de Fisica Teorica UAM (Madrid), Universität Tübingen, Hamburg University, and Centre Inria Lyon.

The TouQan project aims to advance the theoretical understanding of quantum simulators, experimental devices capable of reproducing complex quantum systems with high controllability. By rigorously examining the range of physical problems that can be reliably simulated by classical and quantum methods, TouQan seeks to clarify the computational power of quantum simulators, particularly in the context of quantum advantage—where quantum devices outperform classical counterparts. The project emphasizes innovative approaches to estimating simulation costs, addressing the impact of hardware noise, and uncovering the fundamental limits of both classical and quantum simulation, building on recent developments in the field of near term quantum computing . This will provide a deeper theoretical foundation for assessing the capabilities of near-term and future quantum simulators, bridging critical gaps in our understanding of their computational potential.
As part of the project, there is an opportunity to work with the IBM Quantum Computer.

The position offered is for a period of one year with the possibility of extension, up to a maximum total duration of 28 months. **The earliest date of starting work is March 2025. The salary is PLN 12564/month gross (approx. PLN 9600/month net).**

The application should include:

1. The scientific CV, including publication list, participation in research projects and conferences (with the clause “I consent to the processing of my personal data necessary for the recruitment process in accordance with the Regulation of the European Parliament and of the Council (EU) 2016/679 of April 27, 2016, on the protection of natural persons with regard to the processing of personal data and on the free movement of such data (GDPR).”
2. Signed RODO clause.
3. Motivation letter, with a brief description of the Candidate’s scientific interests and future research plans.
4. A copy of the PhD diploma, or statement from the PhD Advisor on the planned date of defense (the PhD should be awarded before the post-doc contract starting date).

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5. Applicants should also arrange to have two letters of reference separately sent to the email address given below.

The documents should be sent electronically until **2025-02-08** to rekrutacja@cft.edu.pl. In the title of the e-mails please add **the reference number: MO/01/2025. The competition will be concluded by 2025-02-21.**

Center for Theoretical Physics PAS adheres to the Internal Reporting Regulations, which outline the procedure for reporting legal violations and subsequent actions. The full text of the regulations is available on the Institute's website.

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Information Clause – Job Recruitment

Information Obligation under the Article 13 of the RODO *:

1. **Data Administrator**
The administrator who is a deciding entity on how your personal data will be used is the Center for Theoretical Physics PAN represented by the Director with the seat in Warsaw Al. Lotników 32/46. You can contact the Administrator by using one of the contact forms available on the website: : http://www.cft.edu.pl/

2. **Data Protection Inspector**
The Director of the Center for Theoretical Physics of the Polish Academy of Sciences has appointed the Data Protection Inspector (Inspektor Ochrony Danych - IOD) with whom you can contact in all matters relating to your personal data. You can contact the Inspector by sending an email to: iod@cft.edu.pl

3. **The Purposes of Processing and the Legal Basis for Processing**
Your personal data will be processed for the purpose of running the current recruitment.
The basis for the processing of personal data are the provisions of the Labor Code Act of June 26, 1974 (uniform text: Dz. U. of 2018, item 917) and based on your consent for data processing.

4. **The Period of Storage of Personal Data**
Your personal data will be kept for the duration of the present recruitment.

5. **Data Recipients****
The recipients of your personal data will be only entities authorized to obtain personal data on the basis of the law. Access to your data is provided only to employees authorized by the administrator and associates who must have access to the data to perform their duties.

6. **Your Processing Rights**
You have the right to access your data and the right to correct it or limit processing, as well as the right to appeal against the processing.

7. **The Obligation to Provide Data and the Consequences of not Providing Data**
Providing your personal data specified in the Labor Code is obligatory, and for the remaining extent voluntary.

8. **The right to make a complaint to the President of the Office for the Protection of Personal Data**
When you feel that the processing of personal data violates the provisions of the general regulation on the protection of personal data, you have the right to make a complaint to the President of the Office for the Protection of Personal Data.

Consent to Data Processing

I consent to the processing of my personal data by the Center for Theoretical Physics PAN for the needs of:

☐ Present recruitment.

I provide the data voluntarily and I declare that they are truthful. I got acquainted with the contents of the above information, including information about the purpose and methods of processing personal data and the right to access my data and the right to correct them.

.....

date, signature of the candidate

* Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of individuals with regard to the processing of personal data and on the free movement of such data and repealing Directive 95/46 / EC (general regulation on data protection)