Research Student in Quantum Computing (research and technical associate) (f/m/x)

Ref Number: **MAB/16/2026**
Location: Warsaw, Poland
Salary: **3 000 PLN/month gross** (employment contract: 0.5 FTE; full social security and health insurance)
Number of positions available: 1
Work Arrangement: Hybrid
Position available as soon as possible, for the period of 12 months, with the possibility of extension.

Important Dates:

1. Application deadline: 19.06.2026.
2. Candidates will be informed about the results by the end of July 2026.

Source of financing: Center for Quantum-Enabled Computing / Centrum Obliczeń Wspomaganych Kwantowo (FENG.02.01-IP.05-M032/25). The project is carried out within the International Research Agendas programme of the Foundation for Polish Science co-financed by the European Union under the European Funds for Smart Economy 2021-2027 (FENG).

About us

The Center for Theoretical Physics of the Polish Academy of Sciences (CTP PAS) is a research institute that conducts research in various fields of physics, including quantum information, research on the cosmos and gravitation, semiconductors, and atomic gases. The Institute's strategy is to employ the strongest scientists while giving them freedom in conducting research. The result is the high position of CTP PAS in Poland, publications at a world-class level (papers in Nature and Science), a large number of grants (approximately 30 projects), and participation in international consortia.

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 person who will join the newly established Quantum-Enabled Computing Center (within the structures of the Center for Theoretical Physics of the

Polish Academy of Sciences) — the first scientific unit in Poland dedicated to the application of quantum effects in computing.

Your responsibilities will include:

- Familiarization with the research lines conducted at the Centre.
- Realization of tasks stated in the proposal or other tasks stated by the project leader, using both analytical and numerical methods.
- Dissemination of the obtained results (writing articles, presentations on scientific events).
- Participation in the scientific life of the Center (seminars, meetings, etc.).

Researcher's profile according to the European Council's recommendations: R1

Successful candidates will join the Quantum Computational Advantage group led by prof. Michał Oszmaniec. The research activity of the group is centered on the three goals:

(i) **Randomized implementation of quantum operations and circuits.** Developing methods for realizing complex quantum computations through randomized combinations of simpler, smaller, or noisier circuits. The aim is to reduce hardware requirements and improve the performance of near-term quantum devices, with applications to error mitigation, and circuit cutting for specific algorithmic primitives relevant to concrete applications.

(ii) **Verification of quantum advantage on realistic hardware.** Designing certification and benchmarking protocols for sampling-based quantum advantage experiments, with emphasis on Boson Sampling and Fermion Sampling. We will target implementations on current and near-term platforms, including superconducting qubits, trapped ions, Rydberg atoms, and photonic processors, while accounting for realistic imperfections in these platforms.

(iii) **Applications and limitations of quantum advantage schemes.** Exploring whether quantum advantage protocols can be turned into useful computational or cryptographic primitives, including certified randomness generation, generative machine learning, and quantum chemistry. We will also investigate whether proposed quantum advantages can be "dequantized", leading to improved classical algorithms inspired by quantum protocols.

Keywords: Quantum computing, quantum information, mathematical physics, quantum complexity theory, quantum computational advantage.

About you

Required qualifications, experience, and knowledge

We are looking for talented **students of physics, mathematics or computer science holding at least a Bachelor's degree** with a good background in theoretical physics, in particular in quantum physics and quantum information.

The subject of the project is widely-understood verification and certification of quantum resources. The aim of the position is to familiarize with the subject of the project and then to do research on one of the problems specified by the project leader.

What we offer

- Opportunity to develop research skills and do research in a fascinating field in a creative, innovative and friendly work environment;
- Development of analytical and numerical skills in the field of quantum computing;
- Possible collaboration with top institutes in quantum information theory and related fields (e.g. University of Helsinki, INL in Braga, ICFO in Barcelona)
- Participation in scientific events (workshops, conferences, etc.);
- Employment on a 0,5 FTE; fixed term employment contract the period of 12 months (with the possibility of extension);
- Remuneration PLN 3000 gross per month. The indicated amount constitutes the base salary. Additional remuneration components, including bonuses or allowances (e.g. a seniority allowance), may apply in accordance with the Remuneration Regulations in force at the CTP PAS;
- Flexible working hours;
- A diverse and inclusive culture in which mutual support, teamwork, and respect are highly valued;
- Subsidy for a Multisport card;
- Subsidy for leisure activities;
- Subsidy for nurseries and kindergartens.

How to apply

Applications should be sent to: **recruitment@cft.edu.pl**, by **19.06.2026**, with the reference number **("MAB/16/2026")** in the subject line.

The candidates are welcome to inquire about the project details, research agenda and organizational issues. The questions should be sent by email to: oszmaniec@cft.edu.pl

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Required documents:

1. Curriculum Vitae including the course of studies and possible scientific achievements (publications, participation in research projects, conferences, etc.).
2. Candidates are required to hold at least a Bachelor's degree and to provide a diploma or an official certificate confirming the completion of studies and the award of the degree.
3. Possible recommendation letter from a senior researcher/lecturer etc, providing an opinion on the candidate and his/her previous scientific activity.
4. A document confirming student status, i.e. a current certificate of student status or another equivalent document issued by the university; the candidate must have student status on the date of signing the agreement and throughout its duration.
5. Signed Data Privacy Statement (*EN + PL - GDPR clause*).

Only shortlisted candidates will be contacted.

Shortlisted candidates will receive an invitation for a short interview which will be held at the Center or online.

How we recruit

We carefully review every submitted application. Those whose experience and competencies align with our needs and requirements are invited to an interview (usually held online).
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.