Tenure-track position: Group Leader (k/m/x) in Quantum Algorithms and Machine Learning/Theory of Quantum Computing

Ref. Number: MAB/27/2026

Location: Warsaw, Poland

Salary: 20 750 - 24 250 PLN/month gross (approx. PLN 16,300-18,500 net per month); employment contract: 1 FTE; full social security and health insurance

Number of positions available: 1

Work Arrangement: Hybrid

Start of the position: Negotiable, preferably as soon as possible.

Period of employment: Tenure-track position. Seed funding within C4QEC until the end of 2029. Subsequent funding covered by the EU Teaming for Excellence project until 2031 (under different conditions). Subject to a positive performance evaluation, employment will transition into a permanent position under a standard CTP PAS contract and salary scale.

Keywords: Quantum information theory, quantum computing, quantum algorithms, quantum simulation, quantum error correction, quantum learning, quantum computational advantage, machine learning for quantum technologies

Important Dates:

Application deadline: November 15, 2026

Candidates will be informed about the results by the end of December 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 the project and us

The Center for Quantum-Enabled Computing project's overarching objective is to address several key challenges in the field of computing by paving the way to a verifiable, energy-efficient, reliable, and scalable computational advantage based on quantum systems.

Project's website: https://c4qec.cft.edu.pl/

The candidates are welcome to inquire about the project details, research agenda and organizational issues. The questions should be sent by email to **R. Augusiak** (http://raugusiak.weebly.com): augusiak@cft.edu.pl or to **M. Oszmaniec**: oszmaniec@cft.edu.pl.

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The Center for Theoretical Physics of the Polish Academy of Sciences (CFT PAN) 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 CFT PAN 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 invite applications to lead an independent research group in the theory of quantum computing (Quantum Algorithms and Machine Learning Group) at the newly established Center for Quantum-Enabled Computing (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. The successful candidate will shape an independent, coherent research programme addressing fundamental and practically relevant questions in quantum computation, aligned with the Center's research agenda. We welcome expertise in one or more of the areas below; expertise across all areas is not expected. Machine-learning methods and applications are welcome where relevant to the proposed programme, but are not a requirement for the position. The possible research topics include (but are not limited to):

- **Quantum algorithms:** Algorithms for optimisation, sampling, linear algebra and scientific computing; provable quantum speedups and rigorous analysis of their resource requirements.
- **Quantum software, architectures and compilation**: Circuit synthesis and optimisation, hardware-aware compilation, error mitigation and resource estimation for near-term and fault-tolerant computation.
- **Quantum and hybrid machine learning**: Generative models, classical training with quantum sampling, and analysis of expressivity, trainability and potential quantum advantage.
- **Machine learning for quantum experiments**: Methods for experimental design, adaptive measurements, control, calibration and data analysis; Hamiltonian and Lindbladian learning; Learning quantum states, processes and many-body models;
- **Quantum error correction and fault tolerance**: Error-correcting codes, decoding, logical operations, fault-tolerant protocols and architectures, and resource requirements for reliable quantum computation.

- **Computational complexity:** Quantum complexity theory, hardness of sampling and simulation, and the assumptions, possibilities and limitations underlying quantum computational advantage.
- **Characterisation, verification and benchmarking:** Characterisation and benchmarking of quantum states, processes, devices and noise; certification of quantum computations and simulators;
- **Classical simulation and dequantisation:** Classical and quantum-inspired algorithms, tensor-network methods, and the identification of regimes in which quantum computations can be efficiently simulated.
- **Characterization of key resources for quantum computing** such as non-stabilizerness etc.
- Any other research topic within the theory of quantum computing.

Your responsibilities will also include:

- Contributing to the research agenda and leading the research of your group and being responsible for implementation of related milestones, in cooperation with other group leaders.
- Conducting internationally competitive research in the theory of quantum computing and its connections to quantum technologies and applications.
- Publishing articles in top-tier journals and disseminating results at thematic conferences.
- Applying for external funding from key national and international agencies, including National Science Center (NCN) or ERC.

Researcher's profile according to the European Council's recommendations: R2 or R3.

About you

The candidate must meet the following criteria:

- PhD degree in physics (or a related discipline relevant to the research agenda) obtained by the application deadline.
- Proficiency in English (spoken and written); knowledge of Polish is an asset.
- Strong track record of scientific achievements in the fields of quantum computing, quantum information and related areas, demonstrated by publications in recognized journals and invited conference presentations.
- Experience in leading a research team or demonstrated leadership potential.
- Experience in conducting research projects, acting as a Principal Investigator (PI) or Co-Investigator will be considered an advantage.
- Openness to internal and external collaborations, including international networking.

- Experience in the commercialization of research results and collaboration with industry is an advantage.
- Experience in supervising students or PhD students will be considered an advantage.

Additionally, if selected for the position of Research Group Leader, the candidate accepts that the position involves:

- full-time employment at the Center for Quantum-Enabled Computing (may be reduced to 50% in the case of ERC awardees)
- transferring their current externally funded research projects to the C4QEC (provided that the rules of the funding agency and, where applicable, the current employer allow it), as the place of their implementation, provided that the research topic is aligned with the C4QEC Research Agenda.

At the same time, the C4QEC employee's maximum total professional commitment to all projects carried out at CTP PAS and other units may not exceed 276 hours per month.

What we offer

- **Competitive salary:** PLN 20,750–24,250 gross per month (approx. PLN 16,300-18,500 net per month). The indicated amount includes the seniority allowance. In addition, the Employee may be entitled to bonuses, awards or other remuneration components in accordance with the Remuneration Regulations binding at the Institute. The remuneration is determined and paid in accordance with the Remuneration Regulations in force at the Institute.
- Possibility to apply for additional internal or external funding;
- Leadership over an independent research group;
- Open Access publishing support;
- Funds to conduct applied research (TRL>1) in the domain of quantum computing and/or machine learning;
- Possibility to file patent applications within the project;
- Funds to employ 3 other researchers: 1 postdoc and 2 PhD students and also several students;
- Funds for participation in scientific events (conferences, workshops, etc.) to disseminate project's results, inviting collaborators, research visits at partner institutions;
- Possibility to conduct research/teaching project in collaboration with students;
- Office space for the team;
- Access to training and career development opportunities at CTP PAS;
- Access to computational resources at CTP PAS.

How to apply

Applications should be sent to: recruitment@cft.edu.pl, by **November 15, 2026** with the reference number ("**MAB/27/2026**") in the subject line.

Required documents:

- Group leader CV in the format given by the attachment (max. 10 pages).
- A research track record including in particular: (i) a complete list of publications; (ii) research projects, with those led as Principal Investigator (PI) clearly indicated; (iii) a list of invited and contributed presentations at conferences and workshops; (iv) supervision of undergraduate, graduate, and doctoral students; and other relevant academic activities.
- Cover letter/motivation letter, with information about the availability to start the position (max. 2 pages).
- A description of the initial research plans for the group, including the innovation potential and prospective collaboration with industrial or business partners, in alignment with the research objectives specified in the call (max. 3 pages).

NOTE: If the candidate intends to suggest changes in the research agenda of the group they intend to lead, with the respect the ones shown in announcements, this must be included in the description.

- At least two reference letters (preferably three) about the candidate to be sent directly by senior researchers to recruitment@cft.edu.pl; the candidate is responsible for arranging for the letters to be submitted.
- Copy of the PhD diploma or another certificate of obtaining the PhD; Holders of Polish habilitation (dr hab.) should include relevant documentation as well.
- Signed Data Privacy Statement (EN + PL - GDPR clause).

All required documents should be attached to a single e-mail.

Only shortlisted candidates will be contacted.

Shortlisted candidates will receive an invitation for an 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.

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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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