https://ictqt.ug.edu.pl/job/offer-ictqt-2026-7/

Post-doc position for the Sonata Bis 14 project, offer no. ICTQT_2026_7

Results
competition results

Description
We are looking for **a Post-doctoral Researcher (adjunct)** to work in the International Centre for Theory of Quantum Technologies (ICTQT) hosted by the University of Gdańsk. The position is offered in the Quantum Devices in Computer Science Group (QDCS) led by **Michał Studziński** within the SONATA-BIS 14 project financed by the National Science Centre (NCN).

The MoDIC project entitled 'Efficient higher-order quantum computations' (contract number UMO-2024/54/E/ST2/00316) is financed under the SONATA-BIS 14 program of the National Science Centre in Poland (NCN).

About the 'Efficient higher-order quantum computations' project

The proposed research project aims to achieve significant advancements in the field of higher-order quantum operations (HOQO), the quantum analogue of functional programming. Our investigation will cover critical areas such as the storage and retrieval of quantum programs in quantum memory and the transformation of unknown quantum programs. Additionally, the research seeks to improve the efficiency of quantum unitary programming techniques and quantum machine learning for quantum processes by exploring the theory of universal programmable quantum processors. The project will also address the problem of noisy universal programmable quantum processors, with the goal of developing practical efficiencies and operational frameworks that bring us closer to real-world quantum computing environments.
The project will explore the design of quantum strategies aimed at reducing resource requirements, while simultaneously addressing both practical scenarios and fundamental theoretical limits. This dual approach aims to enhance potential practical implementations and provide insights into the foundational constraints imposed by quantum theory.
A core component of this research involves utilizing symmetries and applying semidefinite programming (SDP) methods. We will focus on reducing the complexity of SDP through symmetry reduction techniques, which are expected to yield significant computational savings and offer valuable theoretical insights into the structure of solutions.
By addressing both the practical and theoretical aspects of quantum computation, the project aspires to make substantial contributions to the advancement of the theoretical foundations and practical applications of quantum computing. The mathematical techniques developed in this research are expected to have broader applicability across other branches of physics and may also provide novel insights of interest to the mathematical community.

Keywords: theory of quantum technologies, quantum information, quantum information processing, quantum algorithms, higher-order quantum computing, symmetries and representation theory.

Hiring organization
International Centre for Theory of Quantum Technologies

Employment Type
Full-time

Beginning of employment
October 1st, 2026. The starting date is negotiable.

Duration of employment
18 months

Salary
up to PLN 12 288 (monthly gross salary, depending on professional experience)

Job Location
prof. Marii Janion 4, 80-309, Gdańsk, Poland

Date posted
2026-07-06

Valid through
07.08.2026

Responsibilities

1. Actively conducting scientific research.
2. Presentation and discussion of ideas and results with a diverse audience at ICTQT and at external events.
3. Participation in seminars, group meetings, and other activities of scientific exchange.

Qualifications

1. PhD degree in physics, mathematics, computer science, or other relevant subject (PhD degree obtained no earlier than 2019).
2. The candidate should be interested in the research topic of the specific group to which they apply, and have a deep knowledge of the related science.
3. Good written and oral communication skills are appreciated.
4. Knowledge of English sufficient to enable free communication.
5. The candidate should be committed to working collaboratively within an inclusive and diverse multicultural environment.

Required documents

1. filled-in recruitment form;
2. curriculum vitae;
3. A research resume with: a list of publications (if any), and a list of ongoing research projects (with specification of their role in the research if unclear); a list of talks at conferences and workshops (if any), and a list of academic prizes and awards (if any);
4. PDF files of (at most) three relevant papers by the candidate (or just web links, in the case of open access publications);
5. Motivation letter (including statement of current scientific interests) – up to 2 pages;
6. **Reference letters** for the candidate sent by two senior researchers (the candidate is expected to contact the referees and ask them to send reference letters directly to ictqt-careers@ug.edu.pl. The letters must be sent before the deadline for submitting applications);
7. Documents confirming academic degrees (a scan of a PhD diploma or a certificate of obtaining the title or confirmation of the planned date of defense (no later than 3 months from the date of announcement of the competition)).

NOTE: Before signing the employment contract, the person selected in the competition is requested to submit to the University of Gdansk the original of the PhD diploma. At the stage of employment, other documents will not be recognized.

Contacts

Job offer details, click here.
Recruitment form, click here.

Application deadline: August 7, 2026 CET (inclusively).

Contacts

Please submit the documents via email to ictqt-careers[at]ug.edu.pl, in the email subject, please include reference code: ICTQT_2026_7

Note

We would like to inform you that the University of Gdańsk has implemented an internal procedure for reporting violations of law and taking follow-up actions, which constitutes Annex No. 1 to Ordinance No. 85/R/24 of 17 September 2024. The procedure has been published in the Public Information Bulletin of the University of Gdańsk in the Legal Acts Database.

International Centre for Theory of Quantum Technologies