https://ictqt.ug.edu.pl/job/phd-position-for-opus-21-project-js/

PhD Student position for the Opus 21 project, offer no. ICTQT_2026_2

Description

PhD Student position for the Opus 21 project

Project title: "Categorical Foundations of the Non-Classicality of Nature"

[The project is financed by the National Science Centre (NCN)]

We are looking for one PhD student to work in the International Centre for Theory of Quantum Technologies (ICTQT), funded by the Foundation for Polish Science, and hosted by the University of Gdańsk (UG) – pioneering and leading center of quantum information research in Poland.

About the OPUS 21 project – UMO-2021/41/B/ST2/03149

Broardly speaking, the project aims to deepen our understand of the nonclassicality of nature, via foundational research that is both conceptually well motivated and mathematically rigourous.
For more information about the research team see: compositionalfoundations.eu and for more information about the team leader see johnhselby.co.uk.
John Selby's team tightly cooperates with New Quantum Resources Group, Foundational Underpinnings of Quantum Technologies Group, and New Quantum Resources and Thermodynamics Group.

More specifically, the project aims to:
• substantially refine, develop, and extend existing notions of nonclassicality of nature (with a particular focus on generalised contextuality),
• discover entirely novel notions of nonclassicality (in particular, by considering symmetries and unspeakable information), and
• quantify these notions of nonclassicality as formal resource theories and investigate their role in quantum advantages.
The key tools we will use in this project come from process theories, generalized probabilistic theories, ontological models, resource theories, and categorical quantum mechanics. We welcome candidates who are not necessarily experts in these fields but do have an interest in learning about them. We also appreciate any other tools that the candidate brings with them to the team!

The goal of the PhD student will be to tackle foundational problems in quantum theory preferably from a process-theoretic perspective.

Keywords: process theories, resource theories, generalised probabilistic theories, contextuality, ontological models, categorical quantum mechanics, symmetries.

If you would like any further details about the project, the advertised positions, or life in Gdańsk then please feel free to get in contact (john.selby@ug.edu.pl) for a chat.

Hiring organization
International Centre for Theory of Quantum Technologies

Beginning of employment
April 1st, 2026. Offer is preapred for candidates who are already PhD students. The starting date is non-negotiable.

Duration of employment
up to 8 months

Industry
quantum physics

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

Base Salary
PLN 2500 (gross stipend)

Date posted
2022-06-13

Valid through
17.03.2026

International Centre for Theory of Quantum Technologies

PhD students position is offered by the International Centre for Theory of Quantum Technologies of the University of Gdansk within the implementation of the OPUS 21 project entitled “Categorical foundations of the non-classicality of nature (Polish: Kategoryczne podstawy nieklasyczności natury)”. The project is financed by the National Science Centre (NCN).

Responsibilities

1. Active scientific research.
2. Discussion and presentation 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.
4. Participation in activities organized by ICTQT.

Qualifications

1. The candidate should hold a MSc degree in physics, computer science or mathematics.
2. The candidate should be already a Student of the doctoral school.
3. The candidate should be interested in mathematical and conceptual foundations of quantum mechanics and quantum information, and related topics, especially those which are within the research agenda of ICTQT (visit https://ictqt.ug.edu.pl/).
4. The candidate should be committed to working collaboratively within an inclusive and diverse environment.
5. Basic knowledge of quantum theory is appreciated.

Job Benefits

1. Scholarship monthly 2500 PLN (gross stipend, stipend paid from the OPUS 21 project).
2. Work in a rapidly developing, world-class research centre.
3. Scientific and organisational support.
4. Basic equipment and core facilities.
5. Friendly, inspiring, interdisciplinary environment, including “entanglement” with National Centre for Quantum Information (KCIK) and Institute for Theoretical Physics and Astrophysics (IFTiA) at UG.

Required documents

1. Filled-in recruitment form
2. Curriculum vitae
3. Motivation letter (including statement of current scientific interests) – up to 2 pages
4. Optional: a research resume with a list of research projects in which the candidate took part (with specification of the role); PDF files of publications; list of talks at conferences and workshops, list of prizes and awards
5. Documents confirming scientific degrees (copy of diploma)
6. Optional: up to two reference letters, sent directly to ictqt@ug.edu.pl. The letters should be sent before the deadline)
7. Final date of documents submission is March 17th, 2026, 23:59 CET

Recruitment process

General rules of the recruitment process:

1. The recruitment procedure has two stages:

o Pre-selection candidates by the Selection Committee (SC), based on sent documents;
o Candidates interview by SC

2. PhD student positions are offered to candidates who are already PhD students
3. The decision will be made by the SC within 1 week from the date of recruitment completion
4. SC reserves the right to invite for the interview only pre-selected candidates.
5. SC's decision is final and is not subject to appeal.
6. In the event of resignation from accepting the position of the selected candidate, the SC has the right to send the offer to the person placed on the reserve list, and in the absence of such a list, the SC has the right to reconsider the applications submitted to the competition and to indicate a new candidate.
7. SC reserves the right to close the competition without selecting the candidate.

Contacts

Please submit the documents via email to **ictqt@ug.edu.pl**

Dopisek / **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. Informujemy, że w Uniwersytecie Gdańskim obowiązuje wewnętrzna procedura dokonywania zgłoszeń naruszeń prawa i podejmowania działań następczych, stanowiąca załącznik nr 1 do Zarządzenia 85/R/24 z dnia 17 września 2024 roku. Procedura została opublikowana w Biuletynie Informacji Publicznej UG w Bazie aktów prawnych.