https://ictqt.ug.edu.pl/job/postdoctoral-researcher-from-ukraine-for-the-maestro-project-2-2/

Postdoctoral Researcher FROM UKRAINE for the Maestro project

Hiring organization
International Centre for Theory of Quantum Technologies

Beginning of employment
not later than June 30th 2022

Duration of employment
12 months

Industry
International Centre for Theory of Quantum Technologies, University of Gdansk, Poland

Job Location
Jana Bażyńskiego 1A, 80-309, Gdańsk, Poland

Base Salary
PLN ~6000 gross (based on experience) Per month

Date posted
2022-11-07

Description

Project title: Relativistic Causality and Information Processing
(in Polish: Przyczynowość relatywistyczna a przetwarzanie informacji)

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

About ICTQT

We are looking for the **Postdoctoral Researcher from Ukraine** to work in New Quantum Resources Group at the International Centre for Theory of Quantum Technologies (ICTQT).

ICTQT was created in 2018 within the International Research Agendas Programme of the Foundation for Polish Science co-financed by the European Union from the funds of the Smart Growth Operational Programme, axis IV: Increasing the research potential (Measure 4.3). The founders of ICTQT are Marek Żukowski (the director) and Paweł Horodecki (the research group leader). The Centre's official partner is IQOQI-Vienna of the Austrian Academy of Sciences.

The Centre consists of 6 research groups:

Multiphoton Quantum Optics for Quantum Information (leader Marek Żukowski);

New Quantum Resources (leader Paweł Horodecki);

Foundational Underpinnings of Quantum Technologies (leader Ana Belen Sainz);

New Quantum Resources and Thermodynamics (leader Michał Horodecki);

Quantum Cybersecurity and Communication (leader Marcin Pawłowski);

Quantum Open Systems in Relation to Quantum Optics (leader Łukasz Rudnicki).

About the group

The broad aim of the New Quantum Resources Group would be to perform research concerning quantum phenomena which could be used for quantum information processing.

Exemplary goals of the group are:

- Connections between quantum computational speedup and contextuality/Bell-"nonlocality"
- New protocols on randomness amplification
- Research on communication networks
- Connections between violations of Bell inequalities and of non-contextuality and the quantum advantage in communication complexity

- Quantum batteries as open quantum systems
- Relativistic quantum information processing

About the "Relativistic Causality and Information Processing" project:

The project's central goal is to study the information-processing properties within the broad framework of „within-and-beyond-quantum" theories (relativistic quantum physics, PR-boxes, GPTs, etc.). To this end and intergrative methodology combining the tools from i.a. quantum information, quantum field theory, relativity and cryptography will be developed. Finally, protocols for physical implementations and/or simulations of some of the theoretical findings will be developed.

Responsibilities

1. Active scientific research.
2. Presentation and discussion of ideas and results with a diverse audience at the ICTQT and at the external events.
3. Participation in mentoring of PhD students.
4. Participation in activities organized by the ICTQT.
5. Active participation in seminars, group meetings, etc.

Qualifications

1. PhD degree in physics, mathematics, computer science (PhD degree obtained in 2015 or later).
2. The candidate should be interested in mathematical and conceptual foundations of quantum mechanics, quantum information, relativistic physics and related topics, especially those which are within the research agenda of the project.
3. The candidate should be committed to working collaboratively within inclusive and diverse environment.
4. Good written and oral communication skills are appreciated.

Job Benefits

1. Full-time employment in a rapidly developing unit, the International
2. Centre for Theory of Quantum Technologies at the University of Gdansk.
3. possibility of accommodation with the family
4. Scientific and organizational support.
5. Basic equipment and core facilities.
6. Friendly, inspiring, interdisciplinary environment.

Required documents:

1. curriculum vitae;
2. a research resume with a list of research projects in which the candidate took part (with specification of the role); PDF files of publications (if there are any); A list of talks at conferences and workshops, and a list of prizes and awards;
3. Documents confirming scientific degrees (copy of PhD diploma, or equivalent);

Contacts

Please submit the documents via email to ictqt[at]ug.edu.pl