

STIPEND OFFER no. PhD_student_PH_2024_1

Position in the project:	PhD position in project Maestro no. 2021/42/A/ST2/00356
Scientific discipline:	quantum physics
Involvement type:	Stipend contract
Number of positions offered:	2
Remuneration:	monthly stipend (scholarship amount not lower than PLN 1,000, awarded in accordance with the regulations for awarding scholarships in the project: https://ncn.gov.pl/sites/default/files/pliki/uchwaly-rady/2019/uchwala25_2019-zal1_ang.pdf)
Position starts on:	For candidates who are already doctoral students the starting date is negotiable (the fastest possible date for starting work on the project is February 1st, 2024). For candidates who aren't doctoral students and already have an MSc degree and candidates who plan to defend their MSc thesis no later than July 31, 2024, position starts on October 1st 2024 .
Maximum period of contract	12 months (with possibility of extension)
Institution:	International Centre for Theory of Quantum Technologies, University of Gdansk, Poland
Project leader:	Prof. dr hab. Paweł Horodecki
Project title:	Relativistic causality and information processing <i>The project is financed within the Maestro-13 program by the National Science Center.</i>
Offer description:	<p>We are looking for two PhD students 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 Gdansk (UG) – a pioneering and leading center of quantum information research in Poland.</p> <p><u>About the “Relativistic Causality and Information Processing” project</u> 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, an integrative methodology combining the tools from i.e. 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.</p> <p><u>About the group</u> The broad aim of the New Quantum Resources Group would be to perform research concerning quantum phenomena that could be used for quantum information processing.</p>

	<p>Exemplary goals of the group are:</p> <ul style="list-style-type: none"> - 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 <p>About ICTQT</p> <p>The Centre consists of 6 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). More about the research groups please find at you will find here: https://ictqt.ug.edu.pl.</p>
<p>Key responsibilities include:</p>	<ol style="list-style-type: none"> 1. Fulfilling the duties of a doctoral school participant following the study program. 2. Active scientific research. 3. Presentation and discussion of ideas and results with a diverse audience at the ICTQT and the external events. 4. Active participation in seminars, group meetings, etc. organized by the ICTQT.
<p>Profile of candidates/requirement</p>	<ol style="list-style-type: none"> 1. The candidate should hold an MSc degree in physics (preferable), computer science, or mathematics. 2. 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/). 3. The candidate should be committed to working collaboratively within an inclusive and diverse environment. 4. Basic knowledge of quantum information theory is appreciated. 5. Experience in programming (C++, Python or Matlab, Mathematica) is appreciated.
<p>We offer:</p>	<ol style="list-style-type: none"> 1. Monthly stipend. 2. Work in a rapidly developing unit The International Centre for Theory of Quantum Technologies at the University of Gdansk. 3. Scientific and organizational support. 4. Basic equipment and core facilities. 5. Travel funds for scientific collaboration and participation in conferences. 6. Friendly, inspiring, interdisciplinary environment.

Required documents:	<p>All required documents should be prepared in English:</p> <ol style="list-style-type: none">1. Recruitment form.2. Curriculum vitae.3. A research resume with a list of publications, a list of ongoing research projects (with specification of candidate role in the research if unclear), a list of talks at conferences and workshops, and a list of prizes and awards;4. Motivation letter (including a statement of current scientific interests) – up to 2 pages.5. Documents confirming scientific degrees (copy of diploma);6. The reference letter about the candidate sent directly by one senior researcher (the candidate is expected to contact the referee and ask him/her to send the reference letter directly to ictqt-careers@ug.edu.pl. <u>The letter must be sent before the deadline</u>).
Recruitment process:	<ol style="list-style-type: none">1. The recruitment procedure has three stages:<ul style="list-style-type: none">○ Pre-selection candidates by the Selection Commission (SC), based on sent documents;○ Interview of pre-selected candidates by SC;○ Recruitment to the UG Doctoral School of Natural Sciences or the UG Doctoral School of Quantum Information Theory (a formal procedure).2. A PhD student position is offered to candidates who have received an MSc degree and who are already PhD students at Universities/Institutions.3. A PhD student position is also offered to candidates who plan to defend their MSc thesis no later than July 2024.4. An interview is expected in January 2024.5. ICTQT Selecting Commission (SC) reserves the right to invite for the interview only pre-selected candidates.6. SC's decision is final and is not subject to appeal.7. SC reserves the right to close the competition without selecting a candidate.8. The decision will be made by SC within 1 month from the date of recruitment completion.9. 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 application submitted to the competition and to indicate a new candidate.
Submit application to:	ictqt-careers@ug.edu.pl
Application deadline:	January 17, 2024