

## JOB OFFER

Position in the project:	<b>Post-doctoral Researcher for New Quantum Resources Group</b>
Scientific discipline:	quantum physics (including quantum information)
Job type (employment contract/stipend):	employment contract (full-time employment)
Number of positions offered:	<b>2</b>
Remuneration/stipend amount/month:	gross monthly salary up to 12 500 PLN, depending on experience (based on research resume and publication record)
Position starts on:	01.10.2020, however, the start date is negotiable, and depending on current political situation (COVID-19)
Maximum period of contract/stipend agreement:	34 months, subject to periodical evaluations
Institution:	<b>International Centre for Theory of Quantum Technologies, University of Gdansk, Poland</b>
Project leader:	Marek Żukowski
Project title:	<i>International Centre for Theory of Quantum Technologies (ICTQT)</i> <b>[Project within the International Research Agenda programme of the Foundation for Polish Science]</b>
Project description:	<p><u>About project</u></p> <p>We are looking for a Post-doctoral Researcher to work in the newly created International Centre for Theory of Quantum Technologies (ICTQT), funded by the Foundation for Polish Science, and hosted by the University of Gdansk. The founders of ICTQT are Marek Zukowski as the director and Pawel Horodecki as a co-applicant. The Centre's official foreign partner is IQOQI-Vienna of the Austrian Academy of Sciences. Gdansk is the pioneering and leading center of quantum information research in Poland. Gdansk, and the whole Tri-City, is one of the most beautifully located urban areas in Poland, with sandy sea beaches, lakes, and woods within in it and in the nearby area. It is the birthplace of Polish jazz and rock festivals, and vibrant in many fields.</p> <p>The Centre consists of 6 groups: Multiphoton Quantum Optics for Quantum Information (leader Marek Zukowski); <b>New Quantum Resources (leader Pawel Horodecki)</b>; 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).</p> <p><u>About the research group</u></p> <p>The broad aim of New Quantum Resources Group would be to perform research concerning quantum phenomena which could be used for quantum information processing.</p> <p>Examples of possible initial specific topics are:</p> <ul style="list-style-type: none"> <li>- Foundations of quantum information processing resources</li> <li>- Quantum advantage in communication via non-contextuality/Bell-“nonlocality”.</li> <li>- New protocols on randomness amplification.</li> <li>- Research on communication networks.</li> <li>- Physical models for quantum information processing.</li> <li>- Connections between quantum computational speedup and contextuality/Bell-“nonlocality”.</li> <li>- Relativistic quantum information processing.</li> </ul> <p><u>Keywords:</u> quantum entanglement, quantum contextuality, quantum computational speedup, quantum capacity, quantum channels, quantum reduction of communication complexity, violations of local realism, Bell's theorem, resource theory of thermodynamics, resource theories, quantum networks, private bits, quantum privacy, quantum randomness, randomness</p>

	<p>amplification, device-independent randomness amplification, randomness extraction.</p> <p><b><u>The goal of the post-doctoral researcher will be to use expertise from quantum information in order to advance on the research problems delineated in this description including particularly theory of resources for quantum information processing</u></b></p>
Key responsibilities include:	<ol style="list-style-type: none"> <li>1. Active scientific research.</li> <li>2. Presentation of project results to internal and external parties.</li> <li>3. Active procurement of new research grants from external sources.</li> <li>4. Participation in mentoring of PhD and Master students.</li> <li>5. Participation in organizational activity of ICTQT.</li> <li>6. Active involvement in seminars, group meetings etc.</li> </ol>
Profile of candidates/requirements:	<ol style="list-style-type: none"> <li>1. PhD degree in physics, mathematics or computer science (PhD degree obtained in 2016 or later).</li> <li>2. Interest in quantum information and quantum optics.</li> <li>3. Some experience in collaboration with experimental groups is welcome.</li> <li>4. Written and oral communication skills.</li> <li>5. Ability to work effectively with people from diverse cultural backgrounds.</li> </ol>
Required documents:	<p>All required documents should be prepared in English:</p> <ol style="list-style-type: none"> <li>1. Filled-in <a href="#">recruitment form</a>;</li> <li>2. Curriculum vitae;</li> <li>3. A research resume with a list of publications, and a list of research projects (esp. those in which the candidate was the principal investigator); PDF files of three most important papers by the candidate (or just web links, in the case of open access publications); a list of invited talks at conferences and workshops, and a list of academic prizes and awards;</li> <li>4. Motivation letter (including statement of current scientific interests)– up to 2 pages;</li> <li>5. Documents confirming scientific degrees (copy of PhD diploma, or equivalent);</li> <li>6. Name and contact details (e-mail addresses) to two senior researchers who may provide reference for the candidate (<b>the candidate is expected to contact the referees and ask them to send reference letters directly to <a href="mailto:ictqt@ug.edu.pl">ictqt@ug.edu.pl</a>. The letters must be sent before the deadline.</b>). ICTQT may also contact the referees directly, to request the letters, or to send reminders.</li> </ol> <p>General rules of the recruitment process:</p> <ol style="list-style-type: none"> <li>1. Candidates may run simultaneously for other postdoctoral positions offered by other groups.</li> <li>2. A postdoctoral position is offered to candidates who received PhD degree obtained in 2016 or later.</li> <li>3. An interview is expected ( August 2020).</li> <li>4. ICTQT Selecting Commission (SC) reserves the right to invite for the interview only pre-selected candidates.</li> <li>5. SC’s decision is final and is not subject to appeal.</li> <li>6. SC reserves the right to close the competition without selecting a candidate.</li> <li>7. The decision will be made by SC within 3 months from the date of recruitment completion.</li> </ol>
We offer:	<ol style="list-style-type: none"> <li>1. Full-time employment in a rapidly developing unit, the International Centre for Theory of Quantum Technologies at the University of Gdansk. <b>The start date of employment is negotiable.</b></li> <li>2. Scientific and organizational support;</li> <li>3. Basic equipment and core facilities;</li> <li>4. Friendly, inspiring, interdisciplinary environment, including “entanglement” with National Centre for Quantum Information (KCIK) and Institute for Theoretical Physics and Astrophysics (IFTiA) at UG.</li> </ol>
Please submit the documents to:	<b><a href="mailto:ictqt@ug.edu.pl">ictqt@ug.edu.pl</a></b>
Application deadline:	<b>August 2<sup>nd</sup>, 2020 deadline extended to August 31<sup>st</sup>. 2020</b>
For more details about the position please visit:	<a href="https://euraxess.ec.europa.eu/jobs/538380">https://euraxess.ec.europa.eu/jobs/538380</a>
Euraxess job/stipend offer:	<a href="https://euraxess.ec.europa.eu/jobs/538380">https://euraxess.ec.europa.eu/jobs/538380</a>