

JOB OFFER

Position in the project:	PhD student
Scientific discipline:	Physics, engineering and optics
Job type (employment contract/stipend):	Employment contract
Number of job offers:	2
Remuneration amount/month:	6 600 PLN ~ 1 500 EUR gross/month
Position starts on:	1st November 2022 (and onwards, depending on applicant's availability)
Maximum period of contract/stipend agreement:	31st December 2023 (with the possibility of extension, provided that adequate resources are available)
Institution:	International Centre for Translational Eye Research (Institute of Physical Chemistry, Polish Academy of Sciences)
Project leader:	Dr Andrea Curatolo
Project title:	<p>International Centre for Translational Eye Research (MAB/2019/12)</p> <p>The project is carried out within the Image-guided Devices for Ophthalmic Care (IDoc) group of the International Centre for Translational Eye Research (ICTER). The Centre is funded within the International Research Agendas Programme of the Foundation for Polish Science. It is a collaboration between Institute of Physical Chemistry PAS and University College London, UK.</p>
Project description:	<p>The International Centre for Translational Eye Research (ICTER) is a multi-investigator centre for eye research related to imaging and biochemical techniques to support advances in understanding the aetiology and treatment and human blinding diseases. Further information on the research priorities and current expertise of our Centre can be found at http://www.icter.pl.</p> <p>Within ICTER, the IDoc Laboratory, led by Dr Curatolo, seeks to build an advanced imaging device for recording and processing Fourier-domain Full-Field Optical Coherence Tomography (OCT) optoretinography signals for the retina of small living animals when exposed to a light stimulus. The system will be the first in the world to permit objective analysis of visual function, useful for discoveries in vision science and sight-restoring therapy effectiveness evaluation. Additionally, with an external actuator to provide a mechanical stimulus, an <i>Optical Coherence Elastography (OCE) system</i> will be developed.</p> <p>On the other hand, The IDoc labs seeks to develop a novel <i>platform for intraoperative ophthalmic OCT image guidance of robotic-aided treatments</i> to fulfil unmet surgical needs in minimally invasive surgery on the eye (anterior and posterior pole). Novel IR shadowless optical sheathing for smart surgical instruments will be developed. For more information on the projects, please mail Dr Curatolo at andrea.curatolo@ichf.edu.pl</p> <p>The IDoc Laboratory seeks two PhD candidates with experience in optical system design, construction, and testing. In addition, practical skills in software prototyping and data/image processing and analysis algorithm development using LabView, MATLAB, Python are a definite</p>

plus. Prior experience in optical coherence tomography (OCT), real-time systems, automatic control, mechatronics and robotics is also a plus.

The PhD candidates will have a direct impact on lab development and its success by designing and testing intraocular OCT-compatible surgical tools; constructing and testing a novel surgical ophthalmic microscope-integrated OCT system; and aiding the design and development of a Fourier-domain Full-field OCT platform for live small animal retinal imaging and corneal biomechanics.

The PhD candidates will work as part of a multi-disciplinary team of experts in optics, imaging, instrumentation, and software engineering, under the direct supervision of two senior group members and the group leader and collaborators in biochemistry of vision, ophthalmology, and surgery. **The PhD candidates are expected to engage in the appropriate range of academic activities**, including among others: carrying out research as planned and/or directed, project reporting, publication in high impact factor science and technology journals, conference attendance, active collaboration, intellectual property protection, and outreach activities, as appropriate.

Key responsibilities include:

1. Working as a full-time researcher at the International Centre for Translational Eye Research, under the supervision of Dr Curatolo and one senior IDoc member
2. Contributing to research and development connected to the IDoc research projects agenda, including:
 - a. designing and testing intraocular OCT-compatible surgical tools, and
 - b. constructing and testing a novel surgical ophthalmic microscope-integrated OCT system in a *platform for intraoperative ophthalmic image guidance of robotic-aided treatments*
 - c. developing and testing a Full-field Fourier-domain OCT system for live small animal retinal imaging, and
 - d. operating (acquiring and processing data) it as part of the *first platform for optoretinography for investigating the retinal phototransduction process*
 - e. Developing additional hardware systems and data processing methods for OCE
3. Participating in other research projects undertaken within the lab as appropriate and as agreed
4. Designing and building optical hardware setups, in a laboratory setting or for deployment in preclinical or clinical settings
5. Collaborating closely with other team members
6. Acquiring experimental results in a laboratory or preclinical/clinical setting
7. Develop methods to process and analyse the collected data
8. Conducting high-quality, high-impact research in biophotonics and biomedical optical engineering, publishing results in peer-reviewed journals and presenting the results at conferences and elsewhere, as appropriate
9. Presenting research activities and results in reports, presentations, research publications, and to other team, laboratory, centre or institute members, visitors, peers and potential sponsors
10. Assisting in the supervision of master's and undergraduate students, if required
11. Performing other duties as directed

Profile of candidates/requirements:	<ol style="list-style-type: none"> 1. Holds a Master's in engineering, physics, or related fields 2. Background knowledge and documented hands-on experience in at least two of the following: <ol style="list-style-type: none"> a. Optical and optomechanical system design (e.g. Zemax, Solidworks) b. Micro-optics fabrication and probes c. Practical optical system and device construction and testing d. Image acquisition, processing and visualization (e.g. with LabView, MATLAB, Python) e. OCT, interferometry/holography, Fourier optics 3. Very good written and oral communication skills in English 4. High motivation, analytical skills, and independent thinking 5. Good interpersonal skills, ability to work in a team, collaborative attitude 6. A proactive approach to problem solving, achieving tasks and objectives in a timely manner 7. Eligibility for PhD studies in Poland with current enrolment is preferred
Key assessment criteria:	<ol style="list-style-type: none"> 1. Documented professional experience fitting the profile requirements 2. Creativity measured by the quality and number of scientific publications, conference submissions/presentations in which the candidate is an author and patent applications/patents, if applicable 3. Additional relevant courses or certificates
Required documents:	<ol style="list-style-type: none"> 1. Curriculum vitae 2. Scanned copy of the master's diploma/University's certificate confirming the awarded master's degree
We offer:	<ol style="list-style-type: none"> 1. Full-time employment contract with competitive salary 2. Opportunity to work in an innovative scientific environment 3. Professional training with excellent international researchers 4. Access to well-staffed core facilities 5. Opportunity to interact with other PhD students and peers
Please submit the required documents to:	<p>icter_jobs@ichf.edu.pl</p> <p>Kindly specify in the application topic: MCBO 71/2022</p>
Application deadline:	<p>24th October 2022</p> <p>Successful candidates fulfilling the main eligibility criteria and qualifications will be invited for an interview (which will most likely take place in an online format on 25-26 of October 2022). Competition results shall be announced by the end of October 2022.</p> <p>The International Centre for Translational Eye Research (Institute of Physical Chemistry PAS) is committed to employment equality (esp. European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers) and welcomes applications from all qualified candidates fulfilling the requirements specified in this announcement.</p>
For more details about the position please visit (website/webpage address):	<p>www.icter.pl or contact Andrea Curatolo (andrea.curatolo@ichf.edu.pl)</p>
Euraxess job/stipend offer (in case of PhD, postdoc, leader and young leader positions):	<p>XXXXXX</p>

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You have the right to: request access to your data, receive a copy of it; rectify (correct) it; delete it; limit its processing; transfer it; lodge a complaint to the supervisory body; withdraw your consent for processing at any time (withdrawal of consent does not affect the lawfulness of the processing carried out prior to its withdrawal) or to lodge an objection to data processing. More information is available on the Institute's website.

http://www.icter.pl/blob/ICTER_GICR.pdf