

## JOB OFFER

Position in the project:	Master's student (for graduate students)
Scientific discipline:	Physics/Photonics
Job type (employment contract/stipend):	Stipend
Number of job offers:	1
Remuneration/stipend amount/month	Scholarship 1500 PLN (net pay)
Position starts on:	4.01.2021
Maximum period of contract/stipend agreement:	4 months
Institution:	Warsaw University of Technology, Faculty of Physics
Project leader:	dr inż. Krzysztof Switkowski
Project title:	<i>Terahertz structured beams for material diagnostics and microscopy</i> <b>Project is carried out within the HOMING 5/2018 programme of the Foundation for Polish Science</b>
Project description:	The project responds, to the need of screening potential security threats concealed by airline passengers, or in parcels for embassies, the topic nowadays essential. The project aims at improvement of focusing of terahertz radiation. According to classical electromagnetics for Gaussian beams, the focus spot diameter cannot be smaller than c.a. the beam wavelength due to the diffraction limit. The effect is notably for long terahertz wavelength with large focus spot diameter, which hinders resolution of terahertz imaging scanners. The recent experiments in the so-called structured light show that the limit is less constrained thereby structured beams are promising in improvement of terahertz imaging. The project coalesces two very vibrant fields in photonics: structured light and terahertz techniques. It is predominantly experimental research, pioneering in THz vortices generation and their characterization. The outcome of the project will improve detail resolution in terahertz security scanners and material diagnostics, i.e., terahertz microscopy for semiconductor and material science.
Key responsibilities include:	In scope of the engineering research a candidate will be responsible for: <ol style="list-style-type: none"> <li>1. Design and realization of fast scanning optical delay line for Time Domain Spectroscopy system for terahertz field spatial mapping,</li> <li>2. Design and optimization of femtosecond pulse optical fiber delivery system for terahertz detector,</li> <li>3. Perform measurements of intensity and phase maps of terahertz radiation propagated through spiral phase masks.</li> </ol>
Profile of candidates/requirements:	<ol style="list-style-type: none"> <li>1. Being enrolled into an engineering program (bachelor) in technical physics or photonics,</li> <li>2. Outstanding academic records,</li> <li>3. General engineering skills.</li> </ol>

Required documents:	<ol style="list-style-type: none"> <li>1. CV,</li> <li>2. Cover letter,</li> <li>3. Copy of a transcript of records.</li> </ol>
We offer:	The experimental work will be performed in well-equipped Femtosecond Techniques Laboratory at Faculty of Physics at Warsaw University of Technology. We offer mentoring in experimental optics, terahertz techniques as well as ultrafast laser physics. In initial part of the project we are planning practical trainings in scope of cutting-edge technologies such as terahertz and femtosecond techniques, structured light and singular optics to name a few.
Please submit the following documents to:	krzysztof.switkowski@pw.edu.pl
Application deadline:	07.12.2020
For more details about the position please visit (website/webpage address):	<a href="http://www.terahertz.pl/en/Jobs/#Msc">http://www.terahertz.pl/en/Jobs/#Msc</a>
Euraxess job/stipend offer (in case of PhD and postdoc positions):	

Please include the following consent in your offer:

I hereby give consent for my personal data included in my application to be processed for the purposes of the recruitment process under the Personal Data Protection Act as of 29 August 1997, consolidated text: Journal of Laws 2002, item 1182 as amended.