

## JOB OFFER

Position in the project:	Ph.D. student in CENTERA WG1 – Basic Physics and Electronics THz Phenomena Group
Scientific discipline:	Physics
Job type (employment contract/stipend):	Employment contract
Number of job offers:	1
Remuneration/stipend amount/month (“X0 000 PLN of full remuneration cost, i.e. expected net salary at X 000 PLN”):	8 000 PLN of full remuneration costs, expected net salary (after all taxes) at approximately 4 900-5 500 PLN (ca 1 030-1 150 €) <i>[exact net salary depends on individual tax particularities]</i>
Position starts on:	From 15 <sup>th</sup> September 2022/1 <sup>st</sup> October 2022; negotiable
Maximum period of contract/stipend agreement:	Employment contract available till 31.08.2023
Institution:	<b>CENTERA Laboratories NL-11, Institute of High Pressure Physics, Polish Academy of Sciences</b>
Project leader:	Prof. Wojciech Knap
Project title:	<i>Center for Terahertz Research and Applications (CENTERA)</i>  <b>Project is carried out within the International Research Agendas programme of the Foundation for Polish Science</b>
Project description:	<p><i>Center for Terahertz Research and Applications (CENTERA)</i> is an autonomic research unit of the Institute of High Pressure Physics, Polish Academy of Sciences, crafted to become a specialized, world-class, interdisciplinary research unit offering an original inter-disciplinary approach to implement Terahertz science and technology to the benefit of the society.</p> <p>CENTERA was founded by Prof. <b>Wojciech Knap</b> and prof. <b>Thomas Skotnicki</b> within the International Research Agendas Programme of the <b>Foundation for Polish Science</b>, carried out from the funds of the European Regional Development Fund under the Smart Growth Operational Programme (SG OP), Priority Axis 4: Increasing the research potential (<a href="https://www.fnp.org.pl/en/centera-the-centre-for-terahertz-technology-research-and-applications/">https://www.fnp.org.pl/en/centera-the-centre-for-terahertz-technology-research-and-applications/</a>)</p> <p>CENTERA is supported by two main strategic foreign partners:</p> <ul style="list-style-type: none"> <li>• Goethe University Frankfurt, Germany (GUF), which runs the Goethe-Leibniz Terahertz Center, a joint research facility with the Ferdinand-Braun Institute (Leibniz-Institut für Höchstfrequenztechnik), Berlin,</li> <li>• the Institute for Electronics, Microelectronics and Nanotechnology, Lille, France (IEMN).</li> </ul> <p>The activity of CENTERA will be carried out by 5 interacting groups working in the following domains:</p> <ul style="list-style-type: none"> <li>• <b>Solid State Physics - mainly THz plasma instabilities in semiconductor-based low dimensional systems and topological insulators (WG1) – leader: prof. Wojciech Knap;</b></li> <li>• Innovative 2-D materials: basic science and technology with potential THz applications” (WG2, leader: prof. Marek Potemski);</li> <li>• Electronics - exploration of high-frequency limits of Field Effect Transistors (FETs), Heterojunction Bipolar Transistors (HBTs) (WG3 -</li> </ul>

	<p>leader: prof. Alvydas Lisauskas) and innovative optics and antennas towards THz-Integrated-Circuit Electronics (WG4; leader: prof. Dmitri Lioubtchenko)</p> <ul style="list-style-type: none"> <li>• THz applications - demonstrators, and technology transfer (WG5). Applications considered include (but are not limited to): <ul style="list-style-type: none"> <li>(i) security scanners for letters, parcels and packages;</li> <li>(ii) security scanners for people in crowded places;</li> <li>(iii) imaging systems for safety landing or driving;</li> <li>(iv) non-destructive control of products in factories;</li> <li>(v) monitoring of plant growth and content;</li> <li>(vi) examining living tissue or tissue samples for pathologies;</li> <li>(vii) wireless communication.</li> </ul> </li> </ul> <p>In course of the project the number of groups and the scope of their interests may evolve.</p> <p><b>Each WG is led by an independent Team Leader, selected via international competitions under the supervision of the International Scientific Committee of CENTERA. More information on the pertaining regulations can be found in IRAP Competition Documentation 8/2017 [<a href="https://www.fnp.org.pl/assets/Competition-Documentation-IRAP_8_2017_en.pdf">https://www.fnp.org.pl/assets/Competition-Documentation-IRAP_8_2017_en.pdf</a>] and the web page of IRAP call [<a href="https://www.fnp.org.pl/en/oferta/irap/">https://www.fnp.org.pl/en/oferta/irap/</a>].</b></p>
Key responsibilities include:	<p>The key responsibility of the Ph.D. student affiliated to WG1 is to conduct research on THz structures/devices based on low dimensional systems and grating-gate plasmonic structures, in particular:</p> <ol style="list-style-type: none"> <li>1. Calculations of natural frequencies on periodic plasmonic structures in presence of magnetic field and/or DC current;</li> <li>2. Theoretical description of THz light transmission via grating-gate structures.</li> <li>3. Theory of the optical excitations in solids in particular plasmonic excitations.</li> </ol>
Profile of candidates/requirements:	<ol style="list-style-type: none"> <li>1. Completed higher education studies in the field corresponding to the area of studies (see p.2 below)</li> <li>2. Knowledge of solid state physics, semiconductor physics, and quantum mechanics.</li> <li>3. Current or forthcoming status of a doctoral student (third level degree student) within the appropriate field (see p.2. above), i.e.: <ul style="list-style-type: none"> <li>• EITHER prior enrollment into a doctoral program in an institution capable and willing to cooperate with CENTERA IHPP PAS with respect to doctoral studies/training</li> <li>• OR willingness and ability to successfully enroll into a doctoral school capable of affiliating students to IHPP PAS. For example Warsaw-4-PhD school of Polish Academy of Sciences (see the details linked below);</li> </ul> </li> <li>4. Documented scientific achievements in the form of publications;</li> <li>5. Experience in conducting research in field of plasmonics and nanotechnology;</li> <li>6. Skilled in analytical calculations using Wolfram Mathematica;</li> <li>7. Experience in the study of low-dimensional materials;</li> <li>8. Advanced English (C1);</li> <li>9. Motivation for research work</li> </ol>
Required documents:	<p><u>Required documents:</u></p> <ol style="list-style-type: none"> <li>1. Detailed CV (up to 3 pages);</li> <li>2. Cover/motivation letter (signed) - please mention the earliest possible starting date (maximum 1 page);</li> <li>3. Master diploma or equivalent;</li> <li>4. Documentation of the course of studies (transcript, grades);</li> </ol>

5. Summary of professional accomplishments with concise information about the candidate's academic interests and past achievements, including participation in larger research projects (max 1 page);
6. [OPTIONAL] A document confirming fresh enrollment into a suitable PhD program (see p.3 of Requirements);
7. Personal data processing statement (*see below – please print, sign and scan*).

*All documents must be written in an eligible way (font size 11 pts or more, no less than single line spacing, A4 page size, min. 1.5 cm margins). Violation of this rule will result in rejection of the applicant. Excessive pages will be trimmed off and disregarded.*

#### Recruitment procedure

Documents need to be sent to [jobs\\_centera@unipress.waw.pl](mailto:jobs_centera@unipress.waw.pl) by the deadline 07.09.2022.

Candidates will be screened by a recruitment committee and suitable candidates will be invited for an interview on 9 September 2022 or later, either in person at CENTERA laboratories in CEZAMAT building, Poleczki 19 (entrance from Poloneza Str), PL02-822 Warsaw, Poland, or via skype or webex teleconference.

The candidate selected as a result of the interview will need to secure a status of a doctoral student. This can be achieved through • EITHER prior enrollment into doctoral studies at the institution capable and willing to cooperate with IHPP PAS and its strategic partners • OR willingness and ability to successfully enroll into a doctoral school capable of affiliating students to IHPP PAS. We recommend Warsaw-4-PhD school of Polish Academy of Sciences, which is expected to hold an examination session between in December 2022; for further information and updates please refer to <https://warsaw4phd.eu/en/#rekrutacja> -or contact us via email or phone.

Failure to enroll into any appropriate doctoral school makes the candidate unsuitable for the advertised position; in such a case, next best candidate may be offered a job under the same conditions if deemed suitable by the recruitment committee. If there are no more suitable candidates, the competition will be closed.

CENTERA reserves the rights to close the competition at any stage without selecting any candidate. In such a case, a new job offer will be published.

We offer:

1. 8 000 PLN of full remuneration costs, expected net salary (after all taxes) at approximately 4 700-5 100 PLN (ca 1 100-1 200 €)
2. Full-time employment in a rapidly developing THz unit
3. Work in an international research team at the new unit CENTERA within the well-recognized Institute in Pressure Research.
4. Cooperation with foreign expert institutions, including strategic partners GUF and IEMN, as well as University of Montpellier, Institute for Physics of Microstructures of Russian Academy of Sciences Nizhny Novgorod, Center for Physical

	Sciences and Technology Vilnius, Nanoscience Institute of the National Research Council (CNR-NANO) Pisa. 5. Interaction with industrial partners.
Please submit the following documents to:	jobs_centera@unipress.waw.pl
Application deadline:	7 September 2022
For more details about the position please visit (website/webpage address):	www.centera.eu http://www.unipress.waw.pl/teragan/
Euraxess job/stipend offer (in case of PhD and postdoc positions):	https://euraxess.ec.europa.eu/jobs/822102 (Ref: CENTERA-WG1ds)

Due to the entry into force of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016, we also require that your job advertisements include a clause requesting the candidate's consent to the processing of his or her personal data by the institution which carries out the recruitment process.

To allow us to process your data, please include the following statement in your application:

*"I hereby consent to have my personal data processed by the Institute of High Pressure of the Polish Academy of Sciences with its registered office at Sokolowska 29/37, 01-142 Warsaw, Poland for the purpose of carrying out a recruitment process and selecting an employee and concluding a contract for employment at the Institute of High Pressure of the Polish Academy of Sciences. I have been informed of my rights and duties. I understand that provision of my personal data is voluntary."*

In accordance with Article 13 of REGULATION (EU) 2016/679 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data - general regulation on data protection (Official Journal of the EU L119/1 of 4 May 2016) the Institute of High Pressure of the Polish Academy of Sciences informs that:

1. The Controller of your personal data is the Institute of High Pressure of the Polish Academy of Sciences with its registered office at Sokolowska 29/37, 01-142 Warsaw, Poland.
2. The Controller has designated the Data Protection Officer who supervises the processing of personal data, and who can be contacted via the following e-mail address: [rodo@unipress.waw.pl](mailto:rodo@unipress.waw.pl)
3. The Your personal data will be processed for the purpose of carrying out a recruitment process and selecting an employee and concluding a contract for employment at the Institute of High Pressure of the Polish Academy of Sciences;
4. The provided data will be processed pursuant to Article 221 § 1 of the Act of 26 June 1974 Labour Code (uniformed text: Dz. U. of 2018, item 917) and your consent for processing of personal data;
5. Provision of data in the scope stipulated in the Labour Code is mandatory, and the remaining data are processed according to your consent for processing of personal data;
6. The data will not be shared with any external entities;
7. The data will be stored until you withdraw your consent for processing of personal data;
8. You have the right to access your personal data, to rectify, erase them, restrict their processing, object to processing, and to withdraw the consent at any time;
9. You have the right to lodge a complaint to the President of the Office for the Protection of Personal Data."