UNIWERSYTET WARSZAWSKI

FACULTY OF PHYSICS
UNIVERSITY OF WARSAW

COMPETITION ANNOUNCEMENT

The Dean of the Faculty of Physics, with the consent of the Rector of the University of Warsaw, announces a competition for the position of **research assistant** in the project Marie Skłodowska-Curie Actions Doctoral Networks – High-Power Optical Vortices **(HiPOVor)** Doctoral Network.

About the programme/project/undertaking:

Title of project	**High-Power Optical Vortices (HiPOVor) Doctoral Network**
Type of project	**Marie Sklodowska-Curie Actions Doctoral Networks**
Funding institution	European Commission
Duration of project	01.01.2026 – 31.12.2029
Head of project	prof. Ryszard Buczyński
Description of project	HiPOVor is an international collaborative effort aiming to overcome the challenges of creating light beams that carry optical angular momentum with both very high peak and average powers. A group of young researchers will explore the entire development chain of these beams, including the devices used to generate them, their physical properties, their amplification, their behavior during propagation, and their practical uses. The project will train 15 doctoral candidates to become the first specialists able to produce powerful light beams carrying optical angular momentum and to advance their use in both academic and industrial settings. The work is supported by an interdisciplinary consortium of eight leading universities and nine industry partners. The academic partners are Tampere University in Finland, the University of Stuttgart in Germany, the University of Warsaw in Poland, the University of Glasgow in the United Kingdom, the University of Bucharest in Romania, Université libre de Bruxelles in Belgium, Université Paris Saclay in France, and the CNRS center known as Femto ST in France. The project partners from industry, together with academic institutions, will support research expected to strengthen European scientific excellence, enable new optical technologies, improve methods for producing nanometre-scale structures, and contribute to more sustainable and energy-efficient solutions. The project will develop two approaches based on hot-embossing and nanostructurization. **1. Hot-embossing.** **High power vortex components for Mid IR with hot embossing technology** Hot-embossed optical elements are widely used in commercial applications to produce low-cost optics of arbitrary shape. However, polymer components have limited applications in high-power optics and have low infrared transmission. Hot-embossing is used to mass-fabricate CD player lenses, camera lenses, and aspherical lenses for the visible and near-infrared wavelength ranges. The main advantage of hot-embossing is the ability to create free-form components without the constraints of rotational symmetry as with typical machined lenses. Hot-embossing is a fast technique well suited to mass production and can be used as a continuous process, unlike conventional mechanical shaping of individual components. The aim of using

	hot-embossing is to fabricate optical components for high-power optical vortex generation. 2. Nanostructurization High-power all-fiber vortex beam generators for mid-IR A technique to fabricate optical components with a gradient refractive index distribution - GRIN - compatible with fiber optics. In this method, the micro-optical components consist of a set of nanorods made from a pair of thermally matched glasses arranged in a pre-calculated binary pattern. According to the Maxwell-Garnett effective medium model, the binary patterns mimic a continuous gradient index distribution for wavelengths much larger than the size of a single nano-rod. This allows the fabrication of flat-surface GRIN micro-optical components with any two-dimensional refractive index distribution. The capabilities of this method have previously been demonstrated in the visible and near-infrared wavelength range by fabricating parabolic and elliptical GRIN microlenses, axicons, diffractive optical elements (DOEs), and birefringent artificial glass materials. The aim of using nanostructurisation technology is to fabricate a phase element that generates an optical vortex in the mid-infrared range, and integrate it into an optical fiber, and fabricate an optical fiber that guides the vortex mode.

Position details:

Position title	**Research assistant**
Organisational unit	Faculty of Physics Pasteura 5, 02-093 Warsaw, Poland
Employment group	**Research**
Position profile[1]	R1
Academic discipline[2]	Physical sciences
Number of positions	2
Form of employment and length of working time (proportionally to full-time employment)	Full-time employment
Expected date of commencement of work and employment period	01.10.2026, 36 months
Remuneration	Basic remuneration equivalent PLN 2971,41 EUR gross gross/month. The net salary will result from deducting all compulsory (employer/employee) national social security contributions as well as direct taxes. Benefits: equivalent 710 EUR Mobility Allowance per month (8520 EUR / year) equivalent 495 EUR Family Allowance per month (5940 EUR / year) - Applicable only when the recruited doctoral candidate has family obligations according to the Marie Skłodowska-Curie rules, i.e., when the recruited Doctoral candidate has persons linked to him/her by: 1. marriage, or 2. a relationship with equivalent status to a marriage recognised by the legislation of the country or region where this relationship was formalised; or 3. dependent children who are actually being maintained by the doctoral candidate

[1] Complete only in the case of competition for the position in the research employment group or the research and teaching employment group.
[2] Complete only in the case of competition for the position in the research employment group or the research and teaching employment group.

	More information: link
Other working conditions	Workplace: Institute of Geophysics, Faculty of Physics, University of Warsaw. Career opportunities: – Work in a dynamic research group; – The opportunity to gain unique professional experience; – Stable employment under an employment contract; – The necessary tools for work; – Opportunities for professional development: training with foreign partners, research internships with foreign partners.
Basic responsibilities and obligations	– Conducting research related to the project; – Numerical modelling; – Construction of experimental systems; – Designing and performing experiments; – Disseminating research results in the form of publications; – Preparing technical reports on the work carried out; – Cooperation with foreign partners. *More information:* Scope of responsibilities of the academic teacher
Conditions for entering the competition[3]	– Fulfilment of the requirements set out in Article 113 of the Law on Higher Education and Science (Journal of Laws of 2024, item 1571, consolidated text) – Master's degree in physics, photonics, materials engineering, or related sciences; – The candidate must not hold a doctoral degree on the date of employment; – Fundamentals of research techniques; – Fundamentals of physical modelling techniques; – Proficiency in spoken and written English at least at the B2 level; – The candidate will undertake doctoral studies; – MSCA Mobility Rule: at the time of recruitment by the host organization, the researcher must not have resided or carried out his/her main activity (work, studies, etc.) in the country of his/her employer (Warsaw University, Poland) for more than 12 months in the 3 years immediately prior to his/her recruitment. Compulsory national service and/or short stays such as holidays and time spent as part of a procedure for obtaining refugee status under the Geneva Convention are not considered.
In addition, we expect[4]	– Knowledge of optical issues; – Knowledge of software for modelling physical experiments; – Knowledge of software such as Comsol, Lumerical, Optical Studio; – Knowledge of programming languages: Matlab, Python; – Ability to solve technical problems; – Creativity and communication skills; – Manual skills enabling experimental work, including work with small elements under an optical microscope. If hired, we expect the University of Warsaw to be the primary workplace for the successful candidate.
Criteria for the assessment of candidates in a competition	**1. Scientific achievements (publications, projects, presentations)** – The number and quality of scientific publications (including those in JCR-listed journals), assessed in the context of the length of the candidate's academic career; – Participation in research projects (national and international); – Presentations at scientific conferences. **2. Research experience and competencies** – Consistency of experience with the project's subject matter; – Knowledge of tools, methods, and techniques relevant to the given project. **3. Soft and organizational skills** – Communication skills and ability to work in a team; – Independence in planning and conducting research;

[3] Required by the Act, the Law on Higher Education and Science, the Statute of the University of Warsaw, as well as necessary for the position.
[4] Additional conditions to be met; however, not meeting them will not lead to a negative formal assessment.

	– Ability to present results (both orally and in writing). In total, a maximum of 100 points can be awarded by each member of the selection committee. The candidate who meets the eligibility requirements for the competition and obtains the highest number of points provided that this score is not lower than 60% of the total possible number of points shall be declared the winner.
Position ~~related~~/not related[5] to activities covered by the protection of minors.	

Competition rules:

Announcement reference number	**WF-1210-6/2026 (II edition)**
Keywords	Wave optics, orbital angular momentum (OAM) beams, glass materials
Deadline for submitting applications[6]	**27.07.2026, 4:00 pm**
Method of submitting an application	**Personally to the following address:** **Institute of Geophysics, Faculty of Physics, University of Warsaw,** Pasteura 5, 02-093 Warsaw, loc. B4.41, or in electronic form send to the following address **sekretariat.IGF@fuw.edu.pl** (with the subject line „**HiPoVoR- Asystent”**)
Required documents	– Candidate's questionnaire link – CV containing a detailed description of qualifications and experience confirming that the requirements and abilities to perform the duties specified in this announcement are met; – Copies of documents confirming education, course of study to date, employment, and qualifications; – A list of publications and conference presentations with a description of your contribution; – A list of projects in which you have participated, with a description of your contribution; – Letter(s) of recommendation from at least two academic teachers sent by the authors directly to sekretariat.IGF@fuw.edu.pl. Please ensure your application is complete and submitted by the indicated deadline!
The competition is the first stage of the recruitment process. Please read the Policy of Open, Transparent and Merit-Based Recruitment at the University of Warsaw link	
Stages of competiton	The competition consists of the following stages: – Stage I - formal evaluation of documents, – Stage II - substantive evaluation on the basis of submitted documents, – Stage III - interview with selected candidates, – Stage IV - final evaluation of competence, experience, and scientific achievements, – Stage V - adjudication of the competition and announcement of results.
Anticipated date and method of notification of the competition outcomes	30.08.2026 By electronic means to the contact address provided by the candidate
Contact for any questions relating to the competition	kasztel@igf.fuw.edu.pl with the announcement reference number Accessibility needs should be indicated on the Candidate's Questionnaire, in: Other relevant information from a candidate

Employing faculty/unit:

Research profile of faculty /unit	The Faculty of Physics at the University of Warsaw is one of the largest and most renowned physics centers in Poland and Central and Eastern Europe.

[5] Delete as appropriate.
[6] Not sooner than 30 days from the date of publication of the announcement.

	It conducts world-class research across almost all classical and modern fields of physics – from theoretical physics and elementary particles, through astrophysics and cosmology, to condensed matter physics, optics and photonics, statistical physics, biophysics, and nanotechnology and quantum physics. The Photonics Department is one of the strongest and most active units of the Faculty of Physics at the University of Warsaw in the field of optics and photonics. It specializes in: special optical fibers (nanostructured, antiresonant, all-solid, micro-optofluidic, free-form), generation and propagation of structured beams, nonlinear optics and supercontinuum, fiber lasers and amplifiers, optical sensors, micro- and nano-optics, phase elements produced by nanostructuring and hot extrusion methods. The Photonics Department conducts both basic and applied research (sensors, MIR lasers, medical imaging, free-space communication). It cooperates closely with industry and implements numerous international and national projects (NCN, FNP, Horizon Europe, NCBR).
Teaching profile of faculty/ unit	The Faculty of Physics at the University of Warsaw offers one of the most comprehensive and recognized physics programs in Poland. It educates students at three levels (bachelor's, master's, and doctoral) in several specializations, combining classical theoretical and experimental physics with modern applied fields. The main fields of study are: – Physics, – Technical Physics, – Medical Physics, – Nanotechnology, – Astrophysics and Cosmology (in English), – Quantum Information (in English), – Advanced Materials and Nanotechnology (in English). Lectures and classes are conducted by active scientists, many of whom are recipients of ERC, NCN MAESTRO, and FNP grants, as well as authors of publications in renowned journals. As a result, students often co-author publications in high IF journals while still in their master's programmes. The Department of Photonics plays a key role in educating specialists in the field of optics, photonics, and fiber optic technologies: – Fundamentals of optics and photonics, – Special fiber optics and its applications, – Optoelectronics and fiber optic lasers, – Optical spectroscopy and optical sensors, – Nonlinear optics and supercontinuum generation, – Micro- and nano-optics, metamaterials, – Antiresonant and hollow-core optical fibers, – Generation and propagation of structured beams, – Technologies for manufacturing photonic components (nanostructuring, hot embossing).
Other information	

The University of Warsaw has implemented procedures for whistleblowers to report cases of law violation and for undertaking follow-up actions. For **more information** about this topic and the processing of candidates' personal data, please follow the link

The University of Warsaw is a winner of the HR Excellence in Research award granted by the European Commission to institutions adhering to the European Charter for Researchers.

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