CALL FOR PHD STUDENTS
OPTICAL NANOCHARACTERIZATION GROUP AT ENSEMBLE^3

Centre of Excellence for nanophotonics, advanced materials and novel crystal growth-based technologies

ENSEMBLE^3 is a new Centre of Excellence for nanophotonics, advanced materials, and novel crystal growth-based technologies located in Warsaw, Poland, created jointly by the Łukasiewicz Institute of Microelectronics and Photonics, the University of Warsaw (Poland), the Karlsruhe Institute of Technology (Germany), the Sapienza University of Rome (Italy), and the Nanoscience Research Center nanoGUNE (Spain). The ENSEMBLE^3 Centre will work on the development of novel material technologies and advanced materials with unique electromagnetic properties, with potential applications in fields such as photonics, optoelectronics, telecommunication, solar energy conversion, medicine, and aerospace.

Two PhD student positions are open in the "Optical Nanocharacterization" group, led by Dr. Johann Toudert. The group will unveil outstanding and useful optical properties at the nanoscale in innovative materials such as those developed at the Centre. It will contribute at demonstrating novel design concepts opening the path to materials and devices with unprecedented performance. A special attention will be paid to: (i) plasmonic, polaritonic, epsilon-near-zero, high refractive index, cavity, and hybrid optical phenomena; (ii) managing the harvesting and emission of light; (iii) controlling and harnessing the propagation, confinement, polarization, and spectrum of light. These properties will be explored across the ultraviolet, visible, and infrared ranges in advanced materials such as eutectic metamaterials or glasses doped with nanostructures. The exploration will be undertaken by state-of-the-art optical spectroscopy approaches (such as s-SNOM, nano- and micro- FTIR, TERS, TEF, time-resolved confocal fluorescence microscopy, micro-spectrometry). Advanced numerical analysis methods (such as transfer matrix, FEM, FDTD, effective medium, fitting, inverse problem, optimization) will be harnessed to understand the nanoscale physical origin of the measured optical properties and propose new ideas.

Job type:	PhD student in the "Optical Nanocharacterization" group (full-time employment)
N° of job offers:	2 (see thesis proposals here)
Monthly remuneration:	Up to 6,600 PLN gross (depending on experience and expertise)
Position start:	From October 2021 (depending on applicant's availability)

Key responsibilities:

- Perform experiments and analytical work for the development of innovative materials with special optical properties
- Address the physical origin of these properties in relation with the material structure, composition, and other properties (e.g., electronic) at the nanoscale
- Participate in data presentation, writing of manuscripts, lab meetings, seminars, conferences

Profile of candidates/requirements:

- Master's degree (or equivalent) in the field of physics, optics, material science, or similar
- Laboratory experience of at least one of the following disciplines will be a plus: optical spectroscopy, photonics, material fabrication
- Scientific programming skills will be a plus
- Strong motivation for science and scientific research
- Willingness to learn and take new challenges, proactive approach to perform tasks and reach objectives
- Strong ability to work independently as well as in a team, social competence, personal responsibility
- Strong communication skills in English

We offer:

- Innovative scientific environment
- Outstanding facilities
- International cooperation with experienced researchers
- Administrative support for visa and related documentation

Required application documents:
CV with a full list of publications and projects; Proof of suitable diploma; Cover letter specifying what motivates you for joining the group, how you meet the search criteria, your preferred thesis proposal and what motivates you in this proposal; Names and contact details of two or more researchers or professors who may act as referees.

To apply: **Please visit:** http://ensemble3.eu/careers

Or

APPLY HERE

Application deadline: Until positions are filled.
Competitive candidates will be interviewed before the appointments are made.

For further information, visit: **www.ensemble3.eu**
For questions, please contact: recruitment@ensemble3.eu, johann.toudert@ensemble3.eu

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