

Photoelectric Phenomena Research Group at Vilnius University, Faculty of Physics

is looking for a

PhD candidate

on the topic *“Research and development of modern high-sensitivity and high-speed detectors”*

The Photoelectric Phenomena Research Group has many years of experience in the development, implementation and application of technologies for the characterization of semiconductor materials and structures. The activities of the group are focused on the research of recombination, charge transport processes, defect spectroscopy in semiconductors and devices, development and applications of measurement technologies, etc. The group is an active member of CERN RD50/DRD3 collaboration devoted to development of radiation-hard semiconductor particle detectors.

Description of the research topic

The research will be focused on the development of novel, ultra-fast, and high-sensitivity Si and GaN sensors. Such sensors are necessary for future particle accelerators to deal with multiple interactions occurring within a particle bunch crossing. These sensors should withstand unprecedented radiation environments. Sensors of high-speed and high-sensitivity are also in high demand for a number of medical applications, like real-time in/ex vivo dosimetry, where high sensitivity, spatial and time resolution are of the paramount importance.

The PhD activities will be devoted to development of new spectroscopic technologies for characterization of heavily irradiated Si, GaN and other wide bandgap materials. The student will be also expected to engage in technology development for formation of ultra-fast, ultra-thin, and radiation-hard sensors using various semiconductor structures. The work will be intense on experimental and numerical investigation of radiation defects and their impact on device functional parameters.

Requirements

- Master's degree in physics, engineering or closely related subject.
- Good written and spoken English.
- Candidate is expected to work on-site in Vilnius University Saulėtekis Campus for the full term of the PhD contract (4 years).
- Experience with detectors, good knowledge of electronics, and hands-on experience in a scientific lab will be considered an advantage.

We offer

- 4-year PhD contract, starting from the 1 October 2024.
- Untaxed scholarship of 1045 EUR/month for the first year and 1210 EUR/month starting from the second year. Additionally, the PhD student can be employed part-time as a laboratory technician with salary 462 EUR/month (before taxes). There is a possibility to further upgrade the position to research assistant with salary 980 EUR/month (before taxes) upon achieving required results.

Application instructions

- The applications should be sent by e-mail to Dr. Tomas Ceponis (tomas.ceponis@ff.vu.lt) by 30 April 2024. The applications must include: (i) curriculum vitae, (ii) cover letter describing your interest, (iii) publication list, if any, (iv) two recommendation letters, one from the master thesis supervisor and the second from any other professor.
- The selected applicants will be invited for the remote interview by 15 May 2024.
- The decision for the selected candidate will be announced by 31 May 2024.

For any further information, please contact Dr. Tomas Ceponis (tomas.ceponis@ff.vu.lt).