



PhD position

Silfrared: silicon-based materials for the short-wave infrared range

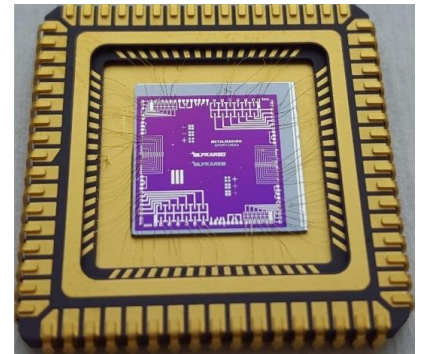
Silfrared aims to develop a new technology for **infrared photodetectors** using **supersaturated silicon** and **black silicon**. The goal is to create low-cost, high-resolution, and fast-response detectors for night vision applications, providing the EU with a strategic advantage in surveillance and reconnaissance operations. This technology combines uncooled operation, high resolution, and fast response time with improved system size, weight, power consumption and cost requirements than other solutions. More details at https://defence-industry-space.ec.europa.eu/funding-opportunities-0/calls-proposals/result-edf-2024-calls-proposals_en

What candidates should have:

- Physics or engineering (Electronics, Telecommunications) degree.
- Physics related Master **finished**.
- Knowledge of semiconductos physics, microelectronics and photonics.
- Good academic records.

What we offer:

- 4 years contract starting on 1st December 2025.
- PhD thesis development in the microelectronics field.
- Excellent experimental infrastructure.
- Nice and enriching work environment.
- International job projection.
- Introduction to the defense sector.



Tasks:

- Fabrication and characterization of semiconductor samples and optoelectronic devices using microelectronics techniques such as ion implantation, laser annealing, optical photolithography, Raman spectroscopy, UV-Vis-NIR spectroscopy, lifetime characterization, electronic transport properties characterization, spectral infrared photoresponse, detectivity, etc.
- Development of a new class of infrared devices.
- Transference of the technology to the industrial partners.

Candidates should send their CV with details of graduate and Master's grades to Prof. Javier Olea (oleaariz@ucm.es) at Physics Faculty (UCM, Madrid).

Visit the Thin Films and Microelectronics Group laboratories at the Physics Faculty!



September 2025