

**DC 2 Self-powered photodetectors based on ferroelectric thin films for IoT applications.**

Host Institution	University of Minho
Supervisor	José Silva
Duration	36 months
Subject Area	Materials, Ferroelectrics, Pyroelectrics
Doctoral degree	Doctoral Program in Physics (MAP-Fis) or Materials Engineering Doctoral Program at UMINHO

Description

Self-powered photodetectors are promising solutions to achieve autonomous sensors for the Internet of Things (IoT). For this purpose, ferroelectric materials are very promising due to the so-called ferro-pyro-phototronic effect. UMINHO team has pioneered the development of ferroelectric-based self-powered photodetectors. However, full understanding of the mechanisms leading to the photodetector performance that are observed in these devices are not fully understood, hampering their further development. The selected candidate will learn to fabricate these devices, becoming an expert in the entire process: from the growth to the device fabrication and will work on the optimization and understanding of the underlying physics. The candidate will spend a period at the University of Oxford, at the University of Cambridge and at the Institute of Materials Science of Barcelona to learn about the intricacies of ferroelectric-based photodetectors.

Project-specific selection criteria:

- Master's degree in physics, physics engineering and materials engineering.
- Affinity for experimental work.

Other criteria:

- Highly proficient English language skills.
- Willingness to work collaboratively in a research environment.
- A strong commitment to their own continuous professional development.
- Willingness to travel and work across Europe.

Additional information

As part of the MSCA programme, all recruited MASAUTO researchers must comply with the Horizon Europe MSCA eligibility criteria:

- Doctoral Candidates must not have a doctoral degree at the date of the recruitment by the host organisation.
- At the time of recruitment by the host organisation, DCs must not have resided or carried out their main activity (work, studies, etc.) in the country of their host organisation for more than 12 months in the three years immediately prior to the recruitment date. 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 taken into account.

