



<b>DC 10</b>	<b>Ferroelectric HfO<sub>2</sub>/ZrO<sub>2</sub> superlattices for edge-computing</b>
<b>Host Institution</b>	IBM
<b>Supervisor</b>	Bert Jan Offrein
<b>Duration</b>	36 months
<b>Subject Area</b>	Materials, Ferroelectric
<b>Doctoral degree</b>	Graduate School for Science and Engineering (GSSE), University of Groningen.

**Description**

The Internet of Things (IoT) devices are putting even more pressure on memory to consume less power. Therefore, it is highly demanded to obtain low-power memory devices. For this purpose, ferroelectric materials are considered as one of the best solutions. The IBM team focuses on non-volatile memory capability in thin films transistors, as well as tunnel junctions. Therefore, the candidate will explore the fabrication of HfO<sub>2</sub>/ZrO<sub>2</sub> superlattices by atomic layer deposition or, alternatively, superlattices combining homogeneous HfZrO<sub>4</sub> and a dielectric spacer for low power non-volatile memory devices and their cointegration with energy harvesting devices, targeting the fabrication of an autonomous smart sensor.

The candidate will spend a period at the University of Groningen and Luxembourg Institute of Science and Technology to learn the intricacies of ferroelectric-based superlattices.

**Project-specific selection criteria:**

- Master's degree in materials engineering, chemistry or physics.
- 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:

- Do 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.

