



DC 8		New Schottky to Ohmic memristor mechanisms in doped epitaxial HfO ₂ films
Host Institution	University of Cambridge	
Supervisor	Judith Driscoll	
Duration	36 months	
Subject Area	Materials, Ferroelectrics	
Doctoral degree	Materials Science, University of Cambridge	
Description		
<p>There is a high demand on ultra low-power memory devices to be deployed for edge computing for the Internet of Things (IoT) devices. For this purpose, ferroelectric materials are considered as one of the best solutions. The Cambridge team has ground-breaking developments of novel Schottky to Ohmic memristors in HfO₂-based epitaxial films. However, full understanding of the mechanisms leading to large ON/OFF ratios that are observed in these devices are not fully understood. Therefore, the selected candidate will learn how to fabricate the memristors, becoming an expert in the entire process: from the epitaxial 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 Groningen, University of Minho and Institute of Materials Science of Barcelona to get a deep understanding on these devices.</p>		
Project-specific selection criteria:		
<ul style="list-style-type: none"> • Master's degree in materials engineering, chemistry or physics. • Affinity for experimental work. 		
Other criteria:		
<ul style="list-style-type: none"> • 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		
<p>As part of the MSCA programme, all recruited MASAUTO researchers must comply with the Horizon Europe MSCA eligibility criteria:</p> <p>a) Doctoral Candidates must not have a doctoral degree at the date of the recruitment by the host organisation.</p> <p>b) 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.</p>		

