



DC 7		Ferroelectric tunnel junctions for low power data processing
Host Institution	University of Groningen.	
Supervisor	Beatriz Noheda	
Duration	36 months	
Subject Area	Materials physics, ferroelectrics	
Doctoral degree	Graduate School for Science and Engineering (GSSE), University of Groningen.	
Description		
<p>There is a high demand on ultra-low-power memory devices to be deployed for the Internet of Things (IoT) devices and a myriad of other applications. For this purpose, ferroelectric materials are considered as one of the best solutions. The Groningen team has pioneered the development of multiferroic tunnel junctions (FTJs) of ultra-thin HfO₂-based ferroelectrics epitaxially grown on perovskite substrates. However full understanding of the mechanisms leading to the very large tunneling electroresistance effects (TER) that are observed in these junctions are not fully understood, hampering their further development. The selected candidate will learn to fabricate these junctions, becoming an expert in the entire process: from the epitaxial growth to the device fabrication. They will work on the optimization and understanding of the underlying physics. The selected candidate will spend a period of time at the IBM-research headquarters in Zurich to fabricate memory arrays with the optimized devices.</p>		
Project-specific selection criteria:		
<ul style="list-style-type: none"> • Master's degree in 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>		

