



DC 11		Predictive modelling of novel material heterostructures for energy harvesting
<b>Host Institution</b>	University of Minho	
<b>Supervisor</b>	Veniero Lenzi	
<b>Duration</b>	36 months	
<b>Subject Area</b>	Simulation, Materials, Semiconductor, Photosensing	
<b>Doctoral degree</b>	Doctoral Program in Physics (MAP-Fis) Doctoral Program at UMINHO	
<b>Description</b>		
<p>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, it is still possible to enhance their performance. Therefore, the candidate will explore heterostructures based on metal/semiconductor/semiconductor materials for high performing sensors and low power electronic devices by identifying strategies to optimize performance of photosensors and the role of ferroelectric polarization in the devices. The candidate will spend a period at the University of Oxford and at the University of Cambridge to learn the intricacies of ferroelectric-based photodetectors.</p>		
<b>Project-specific selection criteria:</b>		
<ul style="list-style-type: none"> <li>• Master's degree in physics.</li> <li>• Excellent Computational Physics/Numerical Simulation skills and background.</li> </ul>		
<b>Other criteria:</b>		
<ul style="list-style-type: none"> <li>• Highly proficient English language skills.</li> <li>• Willingness to work collaboratively in a research environment.</li> <li>• A strong commitment to their own continuous professional development.</li> <li>• Willingness to travel and work across Europe.</li> </ul>		
<b>Additional information</b>		
<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>		

