CNR ISMN
ISTITUTO PER LO STUDIO DEI MATERIALI NANOSTRUTTURATI

CAMOUFLAGE

PRIN PNRR 2022
Funded by the European Union – Next Generation EU

Post-doctoral position available at the Italian Research National Council (CNR)

The Institute for the Study of Nanostructured Materials (ISMN), part of the National Research Council (CNR) seeks applicants for a post-doctoral position within the field of molecular spintronics. The successful applicant will work in the project **CAMOUFLAGE – "Concealable and anti-tampering magneto-memristive physical unclonable functions"**, in which molecular spintronic non-volatile memories (NVMs) will be used to provide the proof of concept of a physical unclonable functions (PUF) with unmatched security in authentication. The post-doctoral scientist will be responsible for all aspects of the research activity: fabrication and characterization of the devices, data analysis and write up of manuscripts. The work will be carried out in a welcoming and supportive research group.

Activity

The fabrication of devices will be carried out in ultra-high vacuum chambers by physical vapor deposition. Patterning will be obtained either by shadow masking or by electron beam lithography. For basic physical characterization, CNR-ISMN has access to SEM, AFM, XPS, microRaman, MOKE and others. The performance of the devices will be studied in a magnetotransport set up, in a temperature range of 20 K – 320 K and a magnetic field of up to 0.9 T. Electrical characterization will be performed with standard SMUs and a pulse generator with a minimum rise time of 70ps for high frequency measurements. The activity will also involve the interfacing of new instrumentation with a computer and the programming required for its management, with Python, LabView or an equivalent language.

Research team	**Required qualifications and skills**
CAMOUFLAGE is a joint project with the Polytechnic University of Milan and lead by CNR-ISMN. CNR is the premier Italian government research body, with 88 institutes located all over the country. The project is led by Dr. Alberto Riminucci, research scientist at CNR-ISMN. The unit of the Polytechnic University of Milan is led by Prof. Daniele Ielmini, professor at the department of Electronics, Information and Bioengineering.	-Undergraduate degree in Physics, Materials Science of Chemistry -PhD in Physics, Materials Science or related disciplines **Pluses** -Experience with ultra-high vacuum and physical vapor deposition techniques -Experience with interfacing measuring equipment with a computer, using LabView, Python or similar languages -Experience with common data processing software such as Origin or Matlab -Experience in authoring scientific papers

CONTACTS:

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Terms of employment

This is not a remote work offer. When the experimental work and the schedule permit it, that data analysis and writing activities can be occasionally done remotely. The position is offered for 18 months full time, upon the successful completion of the selection process.

HOW TO APPLY: https://www.urp.cnr.it/node/3243
Application deadline: 20th April 2024