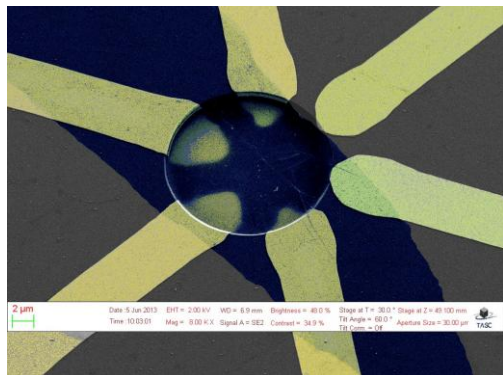




A PhD position at the PhD school in nanotechnology is available funded by the Istituto Officina dei Materiali of the Italian Council of Research on an Italian Minister (MIUR) funded FIRB project aimed at developing new nanotechnological tools for cancer theragnostic.

Deadline for application 16.09.2013



The PhD project is aimed at the development of a graphene-based nanomechanical sensor platform for extremely sensitive protein detection. Single layer graphene sheets will be deposited on a nanofabricated substrate in string or drum configuration (see figure). The predefined electrical contacts will be used to investigate the mechanical properties of the devices in vacuum and in liquid.

Finally the graphene layer will be chemically functionalized with test receptors such as the biotin-streptavidin system, and sensor performance will be exploited to the single protein detection level.

Three research groups will mainly support the candidate's project. The first, lead by dr. Marco Lazzarino is focused on the fabrication of micro and nanomechanical biosensors, and on mechanobiological application of scanning probe microscopy. The second, lead by dr. Stefano Roddaro is focused on transport properties at the nanoscale, mainly semiconductor nanowires and graphene. The third, lead by prof. Maurizio Prato, has a worldwide leadership on carbon chemistry and, in particular on fullerene, nanotubes and graphene functionalization.

The candidate will operate in a multidisciplinary group and collaborative with other 5 phd students and three young researchers. He will work mainly in clean-room, performing the nanofabrication of the devices, and in the laboratory dedicated to nano-electromechanical sensor characterization. Graphene functionalization will be characterized by the candidate using atomic force microscopy and Raman spectroscopy.

The devices will be finally tested in clinic thanks to the collaboration with some of the major oncological hospitals in northern Italy, within the FIRB project consortium and evaluated for commercial applications

We offer a multidisciplinary environment with state of the art scientific opportunities and training in new generation tools for nanoscience.

We search candidates with a degree in physics, material science, engineer or a related field with motivation to tackle a challenge, fascinated by the ultimate frontiers of nanotechnology, interested in learning new experimental approaches, willing to work in laboratory.

Interested candidates should contact by e-mail Marco Lazzarino (lazzarino@iom.cnr.it) or Stefano Roddaro (roddaro@iom.cnr.it).

Further information on the PhD school are available at the school website: www.nanotech.units.it.

Further information on the application are available: <http://www2.units.it/dott/en/?file=DottBandi.inc>

Further information on the research groups are available at webpage: <http://people.iom.cnr.it/lazzarino/>.