

Postdoc position

Switchable molecular wires featuring quantum interferences for thermoelectric applications

A postdoc position is open in the “*molecular nanostructures & devices (NCM)*” group at the Institute for Electronics Microelectronics and Nanotechnologies (IEMN), a CNRS laboratory located at the university of Lille – France.

This position is open in the context of a collaborative project funded by the "Agence National de la Recherche". It is a project in "molecular-scale electronics" with French and international collaborations in coordination chemistry (ISCR-Rennes), computational chemistry (ISCR-Rennes and Univ. Mons, Be) and nanoscale, single molecule, physics (U. Konstanz, Ge).

We are looking for a highly motivated postdoc with a PhD degree in condensed matter physics, materials science, nanoscience or a related discipline and a strong interest for organic nanostructures, nanofabrication, scanning probe microscopy and interdisciplinary research. The postdoc researcher will be in charge of the electrical and thermal characterizations at the nanoscale (C-AFM, SThM, NMJs). This person must be a physicist with backgrounds in SPM characterization and/or electrical measurements and/or physico-chemical characterization.

Our main goal with this project is to provide and evaluate innovative and stable molecules, specifically designed to generate efficient thermoelectric mechanism when incorporated between electrodes. A subsequent goal of this project will be to be able to drive remotely those thermoelectric properties. This is a necessary condition to access applications such as nano-generators, information processing, or thermalisation. To that regard, our strategy will be to use electric field and light as switching stimuli.

The position requires a good autonomy and initiative to work in a multidisciplinary environment. Good communication skills (written and oral) in English are also mandatory. The person will be hired by CNRS and mainly working at IEMN (Villeneuve d'Ascq) with short stays at partner labs.

The “*molecular nanostructures & devices*” group is mainly interested in the electronic properties of organic nanostructures and molecular-scale electronics devices. IEMN (www.iemn.fr) is a widely recognized nanotechnology research centers in France with world-class clean-room equipment, electrical characterization and simulation capabilities, near-field scanning probe platform. Our group is well equipped with a platform for "materials and organic devices". We have a large experience for molecular materials and nano-device fabrication and characterization. For more details: [NCM group](#) or [DV page](#).

The position is funded for 1 year (renewable one year), the foreseen starting date is February 1, 2022 or later. Salary : 2 675€-3 805€ gross monthly depending on experience.

Applicants should apply on the CNRS dedicated web site at : <https://bit.ly/2YkzUje>
For more information, please contact *Dominique Vuillaume*, dominique.vuillaume@iemn.fr