

Post-doc proposal (starting before June 1st 2018)

MAGNETIC DATA STORAGE ON MOLECULAR CHAINS

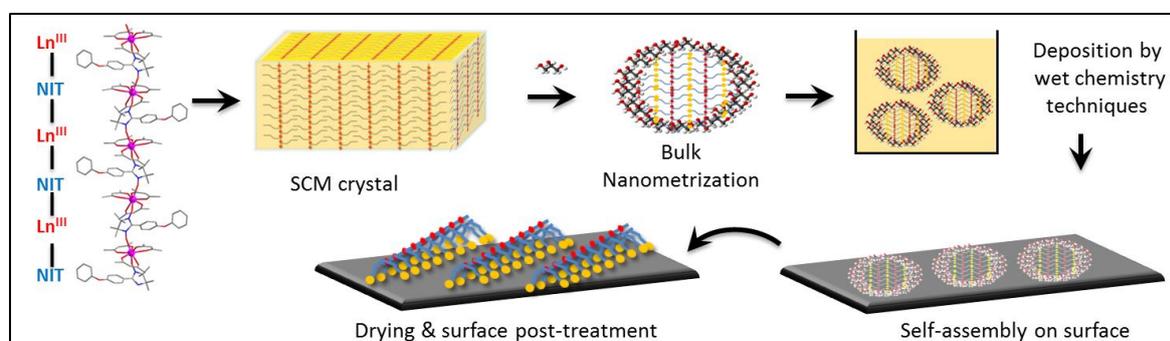
Project EMERGENCE@INC2018

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Why dealing with one-dimensional molecular magnetic memories?

Single-Chain Magnets (SCM) are molecules whose magnetic behavior can be confined in a one-dimensional chain at low temperature. The 1D-MAG project aims to investigate the surface deposition of SCMs to create advanced magnetic materials with unprecedented magnetic properties. This project paves the way toward new magnetic phenomena regarding one-dimensional molecular magnetic structures because of their interaction with the surface. The project implies a tight collaboration with experts in the field of surface science, magnetic measurements and quantum chemical simulations.



Why is it a breakthrough?

Single-Molecule Magnets (SMM) have been targeted as magnetic molecular memories as they may offer tremendous breakthrough is the storage of magnetic information at the nanoscale. However, their interaction with the surface is not well controlled because of the difficulty to tailor spin-phonon interactions. We propose here to use SCMs because their physics is severely different from the one of SMMs as magnetic relaxation is not governed by spin-phonon interactions but by the much robust Glauber's dynamics. Up-to-now no SCM have ever been anchored on surface and magnetically characterized. The difficulty of the deposition of SCMs on surface is inherent to their polymeric nature. In this project we propose to adapt soft-chemistry deposition mastered in our lab to existing SCMs.

What are the risks?

The targeted SCMs are well known in our lab. Surface characterization and on-surface magnetic measurements are well managed by our collaborators. The risk resides in the transferability of the soft-chemistry techniques to SCM.

What about the local ecosystem around the project?

Institut des Sciences Chimiques de Rennes (ISCR) gather +400 chemists in all areas of Chemistry. It is fully equipped with up-to date magnetic characterization instruments and a strong local network of collaborators in the field. Additionally, we are deeply involved in collaboration with world leading groups dealing with on-surface magnetism.

What is the funding?

The funding is a newly created CNRS 12 months post-doc grant called EMERGENCE@INC2018. The amount of the grant will depend on candidate experience. <http://www.cnrs.fr/inc/communication/actualites.htm>.

Which coordinator and lab?:

More info on: coordinator ([K. Bernot](#)) and laboratory ([group](#) and [institute](#))

What are the applicant requisites?

We are looking for a highly motivated candidate with an interest in a multidisciplinary project in **Coordination Chemistry** (synthesis, crystallography, luminescence, magnetism, surface science,...). **A solid background in "soft matter" chemistry will be appreciated.**