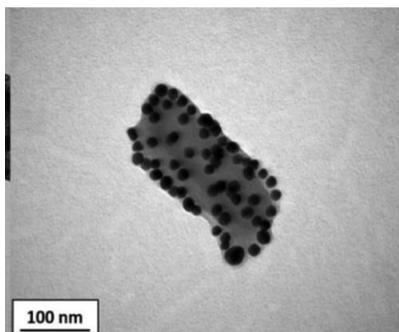


Optical properties and photo-switching of hybrid gold-spin crossover nanoparticles



The interest for hybrid molecular nano-materials has considerably increased. One of the main ideas is to combine the properties of a noble metal with those of a molecular material. Among molecular materials, coordination complexes are especially promising since interactions between metal ions and ligands allow a fine adjustment of the physical properties of the complexes. The complexes based on Fe(II) ions are the most promising and thus widely studied. The Fe(II) spin crossover materials (SCO), combine a spin conversion and a hysteresis

loop which occurs in between a diamagnetic (low spin, $S=0$) and a paramagnetic (high spin, $S=2$) state. Our chemist partners at the ICMCB already reported a direct grafting of a controlled amount of gold nanospheres on such SCO nanoparticles (NPs) [1]. The reduction of the size of this hybrid material to the nanoscale has opened numerous opportunities we would like to explore. In this context, our project granted by the ANR aims at creating and studying the properties of such novel and versatile noble metal/SCO hybrid NPs. During this project, we will notably study the optical photo-switching of these NPs which offers many prospects for organic electronics.

Job description: In the frame of this project, we are looking for a postdoctoral candidate that will:

- Combine different optical characterization techniques (microscopy and spectroscopy) to record and to control the properties of the hybrid nanoparticles synthesized by our chemist partner.
- Develop a set-up making possible to trigger and to record the photo-switching kinetics of an ensemble as well as a single hybrid nanoparticle.

Requirements: We are looking for a versatile and an independent person with a solid background in optics, lasers and spectroscopy. Experience in the related area will be appreciated. Theoretical traits for the analysis of experimental work and the ability to supervise M.Sc. and PhD students will be additional benefits.

Information and salary: The Laboratoire Ondes et Matière d'Aquitaine has extensive research activities on diverse areas such as materials and photonics, condensed matter physics, soft matter and biophysics. It belongs to the University of Bordeaux which is a world-wide recognized research institution

The position will be filled for a fixed-term period of 18 months. The expected start date is January 1, 2019 or as mutually agreed upon by both parties. A trial period of one month will apply. The typical gross salary of a postdoctoral researcher is ~32000 EUR/year, depending on the researcher's experience.

How to apply: Applications should include the following documents:

- Curriculum Vitae.
- List of publications.
- References.
- Motivation letter (incl. research directions):
 - 1-3 pages where you introduce yourself and present your qualifications.
 - Previous research fields and the main research results.
 - Future goals and research focus.

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