POSTDOCTORAL POSITION IN PHOTOCHEMISTRY/PHOTOPHYSICS:

PHOTOPHYSICAL MECHANISM OF MOLECULAR MOTORS STUDIED BY TRANSITORY ABSORPTION SPECTROSCOPY

Job type: CDD
Period: 18 months
Start date: as soon as possible
Salary: 52 704 €/year (average allowance)

Laboratory: http://www.l2cm.univ-lorraine.fr/l2cm/, Nancy, France

Context of the project: The selective transport of ions and molecules across lipid bilayers is a key process to ensure integrity of living cells and to provide them with advanced functionalities. For instance, natural ion channels can be coupled to a source of energy to function out-of-thermodynamic equilibrium and generate concentration gradients. The main objective of the CORNERSTONE project (financed by ANR) is to design synthetic channels equipped with light-driven rotary motors as transducers to regulate selective transport across lipid bilayers. The rational design and full understanding of those active structures will be implemented along three classes of transporters, *i.e.* cations, anions, and water channels. The research program will explore the possibilities offered by those dynamic nanoobjects along 3 work packages including (i) the advanced syntheses of a series of molecular precursors combining various motors and binding hosts for channels formation (N. Giuseppone, Strasbourg), (ii) the experimental measurement and rationalization of the transport efficiency across phospholipid bilayers (M. Barboiu, Montpellier), and (iii) **the precise determination of the motor actuation in relation with the transport mechanism** (A. Pasc, Y. Bernhard, Nancy, research topic of the present post-doctoral position).

Research topic of the postdoc: We offer an 18-months postdoctoral position to work on the photophysical mechanism of molecular motors (or more generally photoswitches). You will be responsible and/or participate to the following tasks:

- Study of the ground state structure and dynamics at molecular and assembled levels
- Characterization of excited-state dynamics at molecular and assembled level
- Participation in the supervision of PhDs, engineers, and trainees - restoring the results, communication at international conferences, participation in writing of manuscripts.

Keywords: ultrafast spectroscopy • self-assembling • photoswitches • molecular machines

Candidate profile and application form:
Applicants should hold a PhD in photochemistry or photophysics. Experience in ultrafast photophysics on molecular motors or photoswitches would be highly appreciated. Creativity, autonomy, and strong reliability are highly required, together with strong interest in multidisciplinary approach. Applicants should be able to communicate fluently in English. Applications should be sent to Andreea Pasc (andreea.pasc@univ-lorraine.fr). It should include a detailed resume and a cover letter highlighting how they meet the criteria.