UNIVERSITÉ DE BORDEAUX

The cluster AMADEus is looking for an outstanding candidate who will complement the existing strength of the University of Bordeaux in:

Theoretical modeling at the frontier between soft matter and organic electronics

Context

The cluster of excellence AMADEus brings together 35 teams belonging to12 research laboratories of the University of Bordeaux. This cluster is expected to have a long-term structuring role in both the academic and economic spheres through the production and transfer of cutting-edge knowledge in emerging materials science and technologies.
The Research Program of AMADEus is organized around 3 Targeted Research Challenges:

- Printable & Flexible Organic Electronics
- Self-assembled Metamaterials
- Biocooperative & bioactive Materials

The Cluster AMADEus is offering Junior Chair fellowships to attract young promising scientist and to help them integrate into the French scientific community. The Junior Chairs are offered on competitive terms for a period of three years. The chair might then be offered permanent positions in the French academic system following an evaluation. The laureates are as well given a budget including one PhD fellowship, post-doc fellowships for three years and research funding.

Duration

36 months

Job status

Contract researcher, full time

The project

The theme of printable and flexible organic electronics relies, amongst others, on the use of organic conjugated molecules and polymers as active components in the elaboration of new multi-layer devices such as light-emitting displays, solar cells, field-effect transistors, or bio-chemical and MEMS sensors. A ubiquitous process in these devices is the transport of electrical charges in organic thin films, required to promote the recombination of charges in OLEDs, to collect the charges generated by light conversion into organic solar cells, to create a conducting channel in OFETs, or to transduce a recognition event into an electrical signal in sensors. Theoretical modeling is central to a fundamental understanding of the electronic processes governing the operation and performance of the devices, particularly in the active layer and at the interfaces, and has been defined as a key transversal competence in the AMADEus

theme of organic electronics. To fully understand the overall performance of such devices different skills, besides an expertise in electronic transport processes are required. To reinforce the expertise of the on-site scientific community, the cluster AMADEus is offering a new chair position in theory and modeling at the frontier between chemistry, physics and electronic structure. The desired skills will be complementary to those already existing on campus and innovative in the application of new theoretical concepts to the study of the physico-chemical properties of soft condensed matter systems. In particular, the cluster AMADEus seeks, among others, a recognized expertise in the modeling of the morphology, at different scales including the molecular level, of organic materials, self-assembled architectures and interfaces of interest in the field of organic electronics. The impact of such morphologies and architectures on the electronic properties of the material and its response to external stimuli are key hurdles in the design and control of the desired materials and devices. Working in close connection with the experimentalists and other theoreticians of the consortium, his/her mission will be to rationalize the experiments using a combination of theory and computer simulations, to establish structure-properties relationships, and to develop predictive theoretical tools providing new guidelines for material design and architecture. On campus skills include the modeling of the electronic properties of single as well as arrays of molecules, the synthesis of novel small and polymer molecules as well as their use at the basis of novel materials, and soft condensed matter expertise in self-assembly, interfacial properties, and statistical properties.

Profile of applicant

The applicants should be fluent in English. Knowledge of French is not mandatory. Considering the large spectrum of available expertise on campus as well as the variety of the sought after applications, the successful candidate will have to be fluent in different domains such as soft condensed matter and self-assembled systems, electronic structure of soft materials, electronic structure at interfaces (hard/hard, soft/hard and soft/soft), electronic and charge transport in organic materials, statistical properties of disordered systems, interfacial properties, the impact of system architecture on a variety of properties, as well as possess a know how in the emerging field of plasmonics. The cluster AMADEus therefore seeks exceptional candidates truly at the frontiers of domains that are usually distinct and live in parallel worlds with the firm conviction that innovation and breakthroughs require such transgression and cross culture links and expertise. Although preference will be given to candidates with a broad spectrum of expertise, applications from excellent candidates in each of the broad categories of the project (soft condensed matter, solid state physics with an inclination to study properties and structure properties relationship of organic semiconductors) will be considered. Applicants should be open to interdisciplinary collaborations with different groups of the cluster AMADEus.

Application

Applicants are invited to submit a detailed biography and publication record together with a 5 page summary of research achievements and projects as well a list of potential referees at http://www.labex-univ-bordeaux.fr/en/Jobs/ job opportunity ref: 2013 AMADEus 021.

Research labs involved

- Laboratoire Ondes et Matière d'Aquitaine, LOMA UMR 5798 CNRS, Université Bordeaux 1- 351 cours de la Libération, 33405 Talence Cedex, France.

- Laboratoire de Chimie des Polymères Organiques, LCPO UMR 5629 CNRS, ENSCBP, Bât. B8 - Avenue des Facultés, 33405 Talence Cedex, France.

- Laboratoire de l'Intégration du Matériau au Système, UMR 5218 CNRS, ENSCBP, 16 Avenue Pey-Berland, 33607 Pessac Cedex, France.

- Institut des Sciences Moléculaires, ISM UMR 5255 CNRS, 351 Cours de la Libération, F-33405 Talence Cedex, France.

- Centre de Recherche Paul-Pascal, CRPP, UPR 8641, 115 Avenue Schweitzer 33 600 Pessac cedex, France.

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