**PhD position on Theoretical Attosecond Molecular Dynamics**

The Universidad Autónoma de Madrid (Spain) and the Université de Bordeaux (France) offer a **salaried PhD position** (36 months) to be carried out under a co-tutelle agreement, **starting by September, 2016**.

The successful applicant shall develop a **research project on “Study of relativistic effect in non-linear interaction between molecules and xuv/soft x-ray short laser pulses”**, oriented to obtain a PhD diploma, to theoretically investigate the coupled electron and nuclear dynamics induced by free electron laser (FEL) pulses on small molecules in the xuv and soft x-ray domain. Emphasis will be put on the study of non-dipole effects.

The work will be linked to the ERC Advanced Grant project **X-Chem** (XUV/X-ray lasers for ultrafast electronic control in molecules) and the **Excellence Initiative of the Université de Bordeaux**. Previous work of the groups in this research topic can be found in [1-9].

The doctoral candidate shall spend half of the time in each institution, and will receive financial support to carry out research stays and to attend to relevant conferences. Access to vast technological resources is guaranteed, including the XChem supercomputer, with more than 1K cores, Mesocentre Aquitain, and access to the European HP Computing Network.

**More information** can be found at [www.xchem.uam.es](http://www.xchem.uam.es) and [http://www.celia.u-bordeaux1.fr](http://www.celia.u-bordeaux1.fr)

**Eligibility criteria**

Prospect candidate must have:

1. A Bachelor degree in physics or chemistry (3 years) and a post graduate specialization degree (e.g. MSc) in Physics or Chemical Physics (or equivalent);
2. Good knowledge of at least one programming language (Fortran 90, C, C++, Python, etc.);
3. Excellent knowledge of quantum mechanics, basic electrodynamics, basic atomic, molecular and optical physics; scattering theory and numerical methods;
4. Fluent English;
5. Enthusiasm for learning and commitment to teamwork.

We will value positively any additional skills in the areas of mathematics, physics and chemistry which are relevant to the offered position. For example: acquaintance with quantum chemistry packages to model excited states; participation to software projects; competences in photoelectron spectroscopies, attosecond physics; etc.

**Application procedure**

All details about the application procedure and the **application form** may be found at: [https://www.xchem.uam.es/xchem/?p=2585](https://www.xchem.uam.es/xchem/?p=2585)

The application form should be downloaded, filled in all its parts and sent (in word format) to [xchem.positions@uam.es](mailto:xchem.positions@uam.es) and to [henri.bachau@u-bordeaux.fr](mailto:henri.bachau@u-bordeaux.fr), **before June 10, 2016**, together with the following documents:

1. Copy of **Bachelor and Master** (if you already have it) degree **certificates**,
2. Copy of the official transcription of your **academic records**, which should contain the mark obtained in the different subjects as well as the total one (with the corresponding mark criteria),
3. **Concise syllabus** of the courses in your record that are pertinent to the position offered (e.g. quantum mechanics; mathematical/numerical methods of physics; atomic, molecular and optical physics; quantum/theoretical chemistry; theoretical physics; etc),
4. A **cover letter**, 
5. An updated **curriculum vitae**, detailing linguistic skills and IT competences (known operative systems, programming languages, scripting languages, graphical programs, text editors, numerical libraries, etc.), and any other information you may consider relevant,
6. Any **additional information** that you consider appropriate to support your application, e.g., attendance to summer schools, awards, possible published papers, samples of code you have written, extra-academic activities, etc.

**Selection procedure**

The selection process will be articulated in four steps: the application, a follow-up, an on-line interview and likely, a personal interview in Madrid.

1. **Application:**
   Applications will be considered and verified as they came, discarding those who do not comply with the basic position requirements or have not been supported with the necessary documentation. Please, be sure to **send all the relevant information at once together with your application form**.

2. **Follow-up:**
   In our communication, we may ask you to provide further information, as well as to answer a few questions. This second step will permit us to form a better idea of your profile and to decide whether to schedule for an on-line interview.

3. **Video-conference meeting:**
   This is a good opportunity for you to clarify all your possible doubts about the position as well as to discuss your possible activities in the group.

4. **If needed**, a group of selected candidates may be invited to Madrid for a final interview.

At the end of the selection process, hopefully by the beginning of June, pre-selected candidates shall be notified about their final results. The final award decision will be published in the project website.

**Remuneration**

Selected candidate will be hired half of the time by each institution, with a gross annual salary of not less than 16,000 € during the first 18 months (Spain) and 24,000 € in the second term (France). These amounts are subject to deduction of the contribution to the social security of the employee and national income taxes. Expenses derived from the researchers attendance to those conferences/workshops which are relevant for the project, shall also be covered.

**Joining the research groups**

Selected candidate will receive administrative assistance during hiring process at each institution (getting the work and residence permit – if applicable-, signing the pre-contract, requesting admission for the PhD programmes and signing the co-tutelle agreement).

Please, take into account that you may need to be ready to provide certified copies of your whole passport, translated and legalized degree certificates and other information, depending on your personal situation.

We hope you may be joining us by September 2016!!