

PRE-DOCTORAL POSITION AT UNIVERSITY AUTONOMA DE MADRID

ATTOSECOND SPECTROSCOPY IN COMPLEX SYSTEMS

POSITION DETAILS:

We are looking for a PhD candidate to work in the research project detailed below under the supervision of Dr. Antonio Picón at the Chemistry Department (<http://campusys.qui.uam.es/>) of the University Autónoma de Madrid (Spain).

Starting date: The candidate should ideally start by **September/October 2018**.

Duration: Minimum duration of three years, subject to a positive evaluation of the hired researcher.

Remuneration: Gross salary (before applying national income taxes) is 16.300 Euros/year, and includes Spanish Social Security and public healthcare.

Other benefits: Expenses derived from the researchers attendance to those conferences/workshops which are relevant for the thesis project, shall also be covered.

RESEARCH PROJECT:

Attosecond spectroscopy in complex systems: Resolving the real-time motion of electrons in complex physical systems is fundamental to advance novel functionalities in catalytic molecules and two-dimensional materials such as graphene. Future studies using ultrafast capabilities with few-/sub-femtosecond x-ray pulses are essential to understand the optical response of these systems in the early steps and unveil the role of electron-electron and electron-nuclear couplings.. The aim of this project is to develop a novel theoretical approach to understand the role of electron transport in these complex systems via attosecond x-ray spectroscopy.

More information can be found at: https://campusys.qui.uam.es/?page_id=1481

ELIGIBILITY CRITERIA:

Prospect candidates must have:

1. A Bachelor degree in physics or chemistry (minimum 3 years or 180 ECTS) and a post graduate specialization degree (e.g. MSc with at least 60 ECTS) 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, solid state physics, basic atomic, molecular and optical physics, 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 computational packages to calculate energy bands; participation to software projects; competences in attosecond physics; etc.

APPLICATION PROCEDURE:

Applications should be submitted by e-mail to campus.theorygroup@uam.es before **May 20, 2018**. A single PDF file including the following documents should be included in the application:

1. A **cover letter**,
2. Filled **application form** (to be downloaded [here](#)),
3. 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,
4. Copy of **Bachelor and Master** (if you already have it) degree **certificates**,

5. Copy of the official transcription of your **academic records** (at BSc and MSc level), which should contain the mark obtained in the different subjects as well as the total one (with the corresponding mark criteria),
6. **Concise syllabus** of the courses in your record that are pertinent to the position offered (e.g. quantum mechanics; mathematical/numerical methods of physics; condensed matter physics; atomic, molecular and optical physics; quantum/theoretical chemistry; theoretical physics; etc),
7. 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 (by the beginning of-June), pre-selected candidates shall be notified about their results.

The selected candidate will be assisted by project managers on getting the work and residence permit to enter in Spain, signing the contract and requesting admission for a PhD program at Universidad Autónoma de Madrid. 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.

FUNDING:

The Comunidad de Madrid regional government provides funding for this job from the call to attract research talent to work in research groups at the Madrid region (Ref. 2017-T1/IND-5432).