

POSTDOCTORAL POSITION

CEA Saclay
Direction des Sciences de la Matière
Département de Recherche sur l'Etat Condensé, les Atomes et les Molécules
Service de Physique et Chimie des Surfaces et Interfaces
<http://www-drecam.cea.fr/srsim/>

The SPCSI (CEA Saclay) has an immediate opening for a postdoctoral position in experimental studies of the electronic structure of solid surfaces and surficial films. The proposed post-doctoral position is part of a project, named NANOAM (Nanometer scale induced structure between amorphous layers and crystalline materials, <http://pruffle.mit.edu/~ccarter/NANOAM>), which is a jointly funded collaboration between the US-NSF and the European Community.

The project research team is comprised of 7 teams from US academic, corporate, and government research institutions and 5 teams from EU academic and research institutions. The goal of this project is to cooperatively develop understanding of the material behavior of amorphous thin layers at interfaces.

In a nutshell, these thin layers exhibit properties and behavior (such as their collective atomic structure, their mechanical properties, and their interaction with light) that are not scientifically understood or characterized. These films exist in many technical devices and determine their behavior and reliability. In fact, it may be possible to tailor their properties to get precise and predictable material behavior.

Anticipated benefits towards the foundation for the understanding and subsequent engineering of intergranular and surficial thin films are to be achieved with a collective approach of experimentation, theory and modeling, and subsequent experimental verification on selected specific material subsystems (silicate and titanate based systems) that may be extrapolated to general systems in which analogous films have been observed. The associated research groups from Europe and the US span the experimental and computational length and time scales that will be required for a successful complete understanding.

The post-doctoral activity will focus on surficial amorphous films at the nanometer scale, especially those relevant to gate dielectrics with high dielectric constant. Part of the work will be to derive from REELS data the surface dielectric constant, which will be compared to the bulk one obtained by TEELS and optical absorption measurements, and compared to electronic structure calculation, performed by other participants to the project.

Experience in the following areas is desirable : surface physics, photoelectron spectroscopy, electron energy loss spectroscopy, ultra-high vacuum experiments, data processing. The successful candidate should be fluent in english, and working knowledge of french would be appreciated.

Although the base laboratory for this position is CEA Saclay, the postdoc activity will imply systematic and frequent visits to the other participating members. The appointment will start in 2002. Duration of the contract will be one year, renewable up to 2 years. Candidates should send a letter of interest, together with their curriculum and at least one letter of recommendation, to the following address :

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