



CENTRE D'ELABORATION DE MATERIAUX ET D'ETUDES STRUCTURALES

CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE

29, rue Jeanne Marvig, TOULOUSE

Post-doctoral position

Investigation of the deposition of metals and molecules on AlN(0001) by non-contact AFM

Context:

Applications are invited for a post-doctoral position in experimental surface physics. This position is funded by the European project PAMS whose objectives are to explore all the scientific and technological aspects of the fabrication of planar and submolecular scale electronic devices on insulating surfaces in UHV.

Objectives and means available:

The working program will be organized along two major axes: (1) Optimizing the growth on the surface of AlN(0001) films of metallic islands that could be used as nanopads to electrically address a nano-object; (2) Studying the adsorption of different classes of molecules on AlN(0001). The medium term goal is to use the knowledge gained to realize a planar device combining metallic nanopads with molecules. This last step could require manipulating the molecules and/or the metallic clusters on the surface with the tip of the AFM.

The experimental means involved in this project are: a MBE chamber dedicated to the growth of AlN films with NH₃ gas precursor, a room temperature nc-AFM connected to this chamber, a low temperature (5K) nc-AFM and a newly-installed four-probe low temperature (5K) machine (3 STM, 1 STM/nc-AFM).

Possible collaboration and networking:

The appointee is expected to collaborate on a day-to-day basis with the chemists and the theoreticians of the Nanoscience group in CEMES. The PAMS consortium gathers European groups from Germany, Spain, Switzerland, Finland and Poland, covering a large domain of expertise in experimental and theoretical physics as well as in chemistry. The appointee is expected to participate to the work meetings of the project and to interact with several of these groups.

Required profile:

A suitable candidate should have a solid experience in scanning probe microscopies in UHV (ideally in non-contact AFM in UHV). Familiarity with the physics of growth of metals and/or molecular layers on surfaces will be highly appreciated.

Foreseen start for the position: From September 2014

Salary: approximately 1800 € net/month or more depending on experience

Duration: Two years

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