

Post-doctoral Position in the Cluster Physics group, Laboratoire de Physique Théorique, Toulouse

A postdoctoral position, funded by CNRS, will open in September or October 2006 in the Cluster Physics group of the Laboratory for Theoretical Physics, CNRS and Université Paul Sabatier, Toulouse, France. The group is composed of Prof. E. Suraud and Prof. Assist. M. Dinh.

The research project consists on microscopic modelizations of the dynamics of clusters and molecules of biological interest under irradiation (laser or charged projectile). It relies on the group's expertise on cluster dynamics, developed since ten years, in particular the response to (possibly violent) electromagnetic excitations of free clusters, and more recently, of clusters in interaction with an external environment (embedded or deposited clusters).

The theoretical approaches are based on the density functional theory for valence electrons, coupled non-adiabatically with a molecular dynamics for ions. Simplified versions of this theory, namely semi-classical methods for electrons, can also be used, for example in very large systems.

First works have been started in two complementary directions:

i) Direct microscopic treatment of molecules such as Uracyl: the final aim is to model the interaction with a finite number of molecules of water (in close relation with experiments presently done in Lyon, France).

ii) Macroscopic treatment of large clusters such as ZnS, used in the transmission of drugs, in relation with chemists and physicians.

The post-doc should work in priority on one of these two directions. He should have a good knowlegde of many-body theory for electrons in finite systems (molecules, clusters), and computing simulations. Expertise either on DFT methods or biological systems would be appreciated but not needed.

The position is available for one year, and should be extended to a second year. The net salary should be about 1800 euros/month. In addition, health insurance, retirement and employment benefits, plus support for travels are provided.

Applicants should provide a CV with the list of publications, a motivation letter, and arrange for two letters of recommendation to be sent (all preferably via e-mail) to:

Éric Suraud

Adress: Laboratoire de Physique Théorique

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