

Post Doctoral Position

Institut de Chimie Moléculaire et des Matériaux d'Orsay, France

Multiscale simulations applied to electrodeposited ultra-thin films

Job description

A postdoctoral position is available starting from February 2008 at the Institut de Chimie Moléculaire et des Matériaux d'Orsay (Paris, France) in the area of multiscale simulations of electrosorption kinetics. The proposal aims at understanding the role of the segregation in the processes of nucleation-growth of ultrathin alloy films A_cB_{1-c} electrodeposited on a homogeneous substrate. Such information on structures and kinetics is essential to modify - or even fit - the magnetic properties of electroplated nanomaterials. We will focus on applying a potential step on alloys with different thermodynamic properties (ideally solid solution, tendency to order, to phase separate). A keypoint is to establish the consistency between atomic-scale numerical simulations (Kinetic Monte Carlo) and the macroscopic scale (Avrami laws) via the mesoscopic scale (cluster dynamics). Comparisons with STM *in situ* studies will then bring detailed information, at the atomic scale, about the influence of substrate surface heterogeneities on the nucleation, growth, and crystalline structure of various films.

Keywords: Kinetic Monte Carlo simulations, Avrami law, nucleation-growth, cluster dynamics.

Qualifications

Applicants must hold PhD or equivalent in physics, chemistry or materials science. Expertise in materials modeling and simulation is expected. The position is full-time for 1.5 year, without any teaching load. Salary is provided by the french ANR (Agence Nationale de la Recherche) and amounts to 2100€ (health insurance included). No French language skill is required.

To apply, please address a detailed CV including a list of publications, and names, addresses, and e-mails of two referees to:

Pr. Fabienne Berthier (fabienne.berthier@u-psud.fr)

Dr. Isabelle Braems (isabelle.braems@u-psud.fr)

LEMHE/ICMMO

Bâtiment 410, Université de Paris Sud XI

94105 Orsay cedex, France

<http://www.icmo.u-psud.fr/Labos/LEMHE/>