NOM de l'entreprise :…SAINT-GOBAIN RECHERCHE…….

Ville et code postal :……AUBERVILLIERS - 93303…….

NOM du laboratoire :……SAINT-GOBAIN RECHERCHE…….

Numéro du laboratoire académique partenaire (si déjà connu) :
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……

DESCRIPTIF du thème de recherche proposé *(sans aucun caractère confidentiel)*: … **Corrosion mechanisms in sputtered deposited Ag based thin films**

Coatings on glass allow for a huge reduction of the thermal radiative transfers through glazings, enabling a significant energy saving in buildings. Today multilayers of dielectrics and very thin silver layers (<10nm) are produced on an industrial scale (several millions of square meters a year). Even if it is a well established process a main difficulty remains the relatively poor chemical stability of the Ag layer during the transformation from a coated glass to a window. Furthermore, a confinement in the multi-layer may alter the corrosion kinetics.

The present thesis intends to identify the corrosion mechanisms of thin silver films incorporated in complex multi-layers. Currently, most academic investigations have concentrated on the atomic scale mechanisms of the corrosion of bulk Ag. However, little work has been done on thin films or clusters where a different local atomic arrangement at grains boundaries or at the interfaces induces new corrosion mechanisms. Parameters like silver layer microstructure, the nature of the surrounding interfaces and of the corrosive agents will be studied. The tools will be vacuum based thin film deposition techniques, UHV surface characterisation tools (Scanning Tunnelling Microscopy and X-ray Photoelectron Spectroscopy) as well as electrochemical characterisation in aqueous environment, including electrochemical Scanning Tunnelling Microscopy(EC-STM).

The candidate should have a master in chemistry, physical chemistry or materials science (or French engineering school) and have taste for experimental and multidisciplinary work. This thesis will be funded thought a grant 'Cifre' and is a collaboration between the French industrial Saint-Gobain and two academic laboratories located close to or in Paris (Laboratoire Surface du Verre et Interfaces; Laboratoire de Physico-Chimie des Surfaces, ENSCP).

Date de recrutement : ……

Adresse email à laquelle le candidat doit répondre: SaintGobain-50069936@cvmail.com