



ERC Advanced Grant PhD position at CNRS/Chimie ParisTech on Corrosion Initiation Mechanisms at the Nanometric/Atomic Scale

The group of Physical Chemistry of Surfaces (PCS), based at CNRS/Chimie ParisTech in the Institute of Research of Chimie Paris (IRCP), is looking for highly motivated candidates for a PhD position associated to the ERC Advanced Grant awarded to Pr. Philippe Marcus for a project entitled Corrosion Initiation Mechanisms at the Nanometric/Atomic Scale (CIMNAS).

About the project

This project envisions that a major breakthrough for corrosion protection of metallic materials lies in a deep understanding and control of the initiation stage triggering corrosion and occurring at the atomic/molecular scale or at a scale of a few nanometres (the nanoscale). It is constructed on new ideas to achieve three knowledge breakthroughs, each answering a key question for the understanding of corrosion initiation on metal and alloy surfaces fully or partially passivated by a thin oxide film. Novel experimental approaches will be applied, combining well-defined model systems and the use of state of the art experimental platforms allowing *in situ* surface analysis under electrochemical control.

Responsibilities

Your task will be to characterise and understand the local reactivity and passivation of the emergence of grain boundaries at a metal surface. You will study a high purity metal in a model corrosive aqueous environment and adopt a novel methodology combining Electrochemical Scanning Tunnelling Microscopy, Electron Back Scatter Diffraction (EBSD) and Electron Channelling Contrast Imaging (ECCI). The research work will include the surface preparation of the model microcrystalline samples and the *in situ* characterisation of the global electrochemical properties and local passivation properties. You will also work in close relation with partner laboratories for the preparation of the microcrystalline sample and for EBSD and ECCI analysis of the microstructure of the studied sample. You will benefit from the experience of the CNRS and Chimie ParisTech staff members, during your initial training period and later on for advice and/or assistance.

Additional Information

Research Field

Physical Chemistry; Materials Science; Corrosion

EU Research Framework Programme

H2020 / ERC Advanced Grant

Organisation and Location

CNRS/Chimie ParisTech, 11 rue Pierre et Marie Curie, 75005 Paris, France

Type of Contract and Job Status

Temporary, Full-time, 35 h per week

Remuneration

1,800 € per month.

Duration:

3 years starting October 1st, 2017.

Application

Applicants should send their Curriculum Vitae, cover letter and two reference letters before August 26, 2017. Only complete applications will be considered. Candidates will be short-listed according to proven academic excellence for an interview in Paris or by video conference call.
For application or further information: Pr. Philippe Marcus (philippe.marcus@chimie-paristech.fr)

Requirements

Education level

- Chemistry: MSc
- Materials Science: MSc

Skills/Qualifications

Compulsory requirements:

- Background in metallurgy.
- Background on surface analysis.
- Knowledge in electrochemistry.
- Knowledge in corrosion.
- Fluent oral and written communication in English.

Aspects that will be positively evaluated:

- Previous experience in corrosion science.