PhD Studentship

Professor Giovanni Costantini

PhD project: Understanding Metal/Corrosion Inhibitor Interface Interactions
Supervisor: Professor Giovanni Costantini
Funding availability: UK/EU. Funded for 3.5 years
Deadline: 15th December 2017. The starting date (ideally January 2018) can be negotiated

Project description:
A PhD position is available to study the interaction of corrosion inhibitor compounds with metallic surfaces. Although the use of corrosion inhibitors has become essential in numerous industrial and technological sectors, very little is known about the mechanism of action of such compounds. This project aims to fill precisely this gap, with the goal of achieving a fundamental, molecular-scale understanding of surface corrosion and its prevention.

The main objective is to answer two fundamental questions: what is the adsorption configuration of corrosion inhibitors on metallic surfaces and what is their chemical state. To this end, the successful candidate will investigate model systems through a variety of advanced experimental techniques, with a particular focus on high-resolution scanning tunnelling microscopy (STM) and X-ray photoemission spectroscopy (XPS).

The student will be working in the research group of Professor Giovanni Costantini and the project will be conducted in collaboration with Lubrizol, a pioneering global supplier of chemical additive technologies including additives for engine oils, driveline applications, gasoline and diesel fuel, other transportation related fluids, and industrial lubricants.

These studies are of high interest for a wide area of nanoscience and technology and the results are expected to lead to a number of high impact scientific publications.

Requirements:
Applicants should have (or be about to receive) an excellent master's (or equivalent) degree in physics, chemistry, engineering or materials science. Experience with scanning probe microscopy and/or surface science would be desirable but is not necessary. The studentship covers tuition fees and stipend, and is part of The Molecular Analytical Science Centre for Doctoral Training (MAS-CDT) at the University of Warwick.

How to apply:
Please direct informal enquiries and requests for further information to Professor Giovanni Costantini (g.costantini@warwick.ac.uk)
Details on the formal application procedure can be found at http://www.go.warwick.ac.uk/pgapply