Swinburne University Postgraduate Research Award (SUPRA) (2016-2019); Stipend $A26,288 per annum (all tuition fees are covered).
PhD Thesis title: **The Role of Biofilm Formation Processes in Microbiologically Influenced Corrosion**
Closing date: 25th April, 2016

23rd March, 2016

Swinburne Faculty of Science Engineering and Technology is offering a SUPRA ($A26,288 per annum for 3 years, with possible extension for 6 months) to an outstanding applicant (local or international) who has graduated with a 4 year Bachelors Degree or a Master of Science Degree in **environmental science** (molecular microbial focus), **microbial sciences** (biofilms of complex microbes), **biochemistry** (microbial focus), or related fields. The successful applicant will be located at the Swinburne University of Technology campus in Hawthorn, Melbourne, Australia and the **project will start by mid 2016**. The SUPRA will be offered on a competitive basis with the following applicant criteria considered: highly motivated individual with creative, critical and conceptual thinking skills, excellent written and oral English communication proficiency, ability to work in a team, expertise relevant to the project (breadth and depth – biofilm studies and modern molecular ecological methods), publications (journal quality, author position, citations), prior exposure to relevant research, and academic performance.

The project is in the dynamic **Microbiologically Influenced Corrosion (MIC)** multidisciplinary research group of **Assoc Prof Scott Wade** and **Prof Linda Blackall** at Swinburne University. MIC refers to the ability of microorganisms to influence, in many cases accelerate, the corrosion of materials. MIC is often associated with localised attack of metals, and extreme corrosion rates of up to 10 mm/year have been observed, significantly greater than abiotic corrosion. One key initial step in MIC is the formation of a microbial biofilm on the surface of the material of interest, however to date this aspect of MIC has received scant attention.

This project will study the fundamentals of biofilm development on metal surfaces in marine waters. Microbial consortia (obtained from field tests) or single/multiple MIC implicated prokaryotic species (e.g. *Desulfovibrio desulfuricans*) will be applied to metals in different defined test solutions to facilitate biofilm formation. Analytical techniques including SEM, ESEM, XPS, confocal imaging (for fluorescence *in situ* hybridisation), and the use of microelectrodes (to determine ion diffusion and mass transfer in/out of biofilms) will be used to study the morphology, composition and aspects of the microbial function of biofilms that are formed as well as the MIC that occurs as a result.

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