Prediction of pitting corrosion in corrosion resistant alloys (CRAs): what we know and what we do not know
By Ke Wang

Abstract

Corrosion resistance alloys (CRAs) are extensively employed in corrosive media due to their excellent corrosion resistance to various reducing and oxidizing environments. However, the occurrence of pitting corrosion is a common issue when CRAs are exposed to aggressive conditions. Numerical modelling has been extensively explored to enhance our understanding of the pitting mechanism, aid in corrosion prediction, and facilitate the design of new CRAs. Despite decades of research and efforts, pitting modelling remains incompletely developed, with traditional models often simplifying the complex physical phenomena inside a pit.

The presentation will focus on overcoming challenges encountered during our model development, including the validation of the modelling through experimental data. Subsequently, the presentation will discuss how the developed model can be applied to predict the local chemistry required for pit propagation, along with the prediction of repassivation potential.

Finally, the presentation will address aspects that are not fully understood and outline the efforts required to build a comprehensive model for predicting corrosion failures in real-life scenarios.

About the Presenter:

Dr. Ke Wang is a Research Fellow at Curtin Corrosion Centre, Curtin University, with more than 10-year experience in materials and corrosion engineering. Currently, he is working on both fundamental research and industry-sponsored projects. His research interests are localized corrosion, environmentally assisted cracking, and corrosion modelling.

Time: Finger food and refreshments start at 6.00pm, presentation commences at 6.30pm
North Metropolitan TAFE 140 Royal St (cnr Fielder St), East Perth
Building D
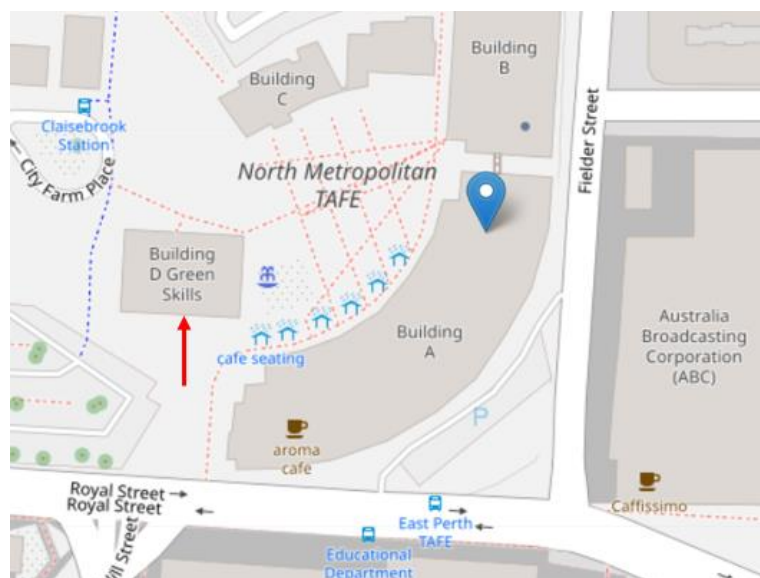
Cost: MA Members $20, Non-Members $25
RSVP: By Monday 12 pm on Monday 11th of March 2024
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