Department of Materials Science and Engineering Seminar Series 2025

Microbially Influenced Corrosion in Metals

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Date and time: 17 February 2025, 2PM – 4PM

Venue: EA-06-04

Abstract

Microbially Influenced Corrosion (MIC) is a type of metal degradation caused by bacteria. It poses significant costs across numerous industries, including oil and gas, water treatment, and power generation, accounting for approximately 20% of all corrosion-related damages in the world. Despite extensive research, a complete understanding of MIC mechanisms remains elusive. This thesis consists of three sections. The first section is to understand and examine the role of passive film on the corrosion of stainless steel in the presence of oxygen scavengers and bacteria. The next section explores a new electrochemical method to monitor the onset of MIC due to Sulphur-Reducing Bacteria (SRB), the most common form of MIC. This novel method offers a potential improvement from the current monitoring method as it focuses on monitoring corrosion metabolites instead of the presence of bacteria, which is tedious and often inaccurate. The last section utilizes an electrochemical method (ZRA) to elucidate the role of biofilm in the corrosion of carbon steels due to SRB.

Biography

GLENYS JOCELIN SUSANTO received her B.Eng. degree from National University of Singapore from the department of Material Science and Engineering. She is currently a Ph.D. candidate in the Department of Materials Science and Engineering under the supervision of A/P Daniel John Blackwood. Her research focuses on the strategies to understand and monitor Microbially Influenced Corrosion in Metal.

Please join us!

HOST: Prof Ding Jun