

Nanoscale Organisation and Dynamics Group

University of Western Sydney



Biofilms and NMR

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Abstract

When bacteria find a surface, they attach and become part of a colony of bacteria surrounded by a polymer matrix that they are responsible for producing. This combination of microbial cells and polymer matrix is the biofilm. Depending on where it is found, biofilm can be harmful or beneficial. For example, biofilm formation on medical implants can cause life-threatening persistent infections and biofouling of piping systems can cause corrosion and reduce flow efficiency, thereby increasing operations and maintenance costs. Natural biofilms, such as those found in the extreme environments on Yellowstone National Park, are responsible for spectacular colourful natural wonders. Biofilms have been shown to improve oil recovery in non-traditional reservoirs and are commonly used in the treatment of drinking water and wastewater. This presentation will cover the range of places where biofilms are found naturally in the environment, where they can be beneficially introduced and established, and where they can be damaging and detrimental. A primary focus of the presentation will be the use of nuclear magnetic resonance (NMR) and magnetic resonance imaging (MRI) techniques to study these interesting biological systems.

Profile

Sarah Codd is co-director of the Magnetic Resonance (MR) Laboratory and a Professor in the Department of Mechanical Engineering at Montana State University. Within the Center for Biofilm Engineering CBE she has established a successful research group, which focusses on the application of high field and low field NMR to biofilms and bio-fouled systems. The CBE's has been a world leader in biofilm research for more than 20 years. Dr Codd is an international leader in application of MR methods to biofouled systems and is a recipient of the Alexander von Humboldt Fellowship and the US NSF CAREER Award.

Staff and students at all levels are welcome to attend.

Venue and Time:

This talk will be held on 3:00 pm on 28th October 2015 at the Campbelltown Campus in Building 9, Lecture Theatre 4 (CA-09.G.02).

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