

Mapping Microbial Cell Interactions on Biomimetic Surfaces

PhD Position Available from Oct 2022, University of Liverpool

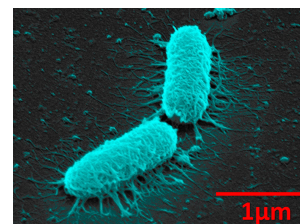
Supervisory team:

Professor R Raval (Academic supervisor), Department of Chemistry, University of Liverpool.

Dr Marco Marcello (Academic co-supervisor), Centre for Cell Imaging, University of Liverpool.

Dr Rikke Meyer (International partner supervisor), Interdisciplinary Nanoscience Center, Aarhus University, Denmark

Nature uses sophisticated strategies to control and eradicate microbial cells. A major scientific challenge is to translate these approaches to artificially synthesised systems. This is an opportunity for a 3.5-year PhD position to understand the fundamental interactions and events that control the attachment and adhesion of cells to surfaces and their subsequent multiplication to create complex communities.



Bacteria at a Surface

This project will create precision biomimetic surfaces and measure their interactions with single microbial cells in order to understand nanoscale aspects of cell-surface interactions, adhesion and cell-cell communication at surfaces. The PhD programme brings together expertise in nanoscale surface assembly and characterisation, cell-surface interaction probes, microbiology and imaging across physical and biological sciences.

The PhD student will be based at the Department of Chemistry, University of Liverpool, within the Open Innovation Hub for Antimicrobial Surfaces and the Surface Science Research Centre, equipped with state-of-the-art facilities for precision surface assembly and characterisation. The Centre for Cell Imaging is a world-class resource for all aspects of biological imaging, allowing real-time imaging of biological responses, from single molecules to multicellular structures. The PhD will also support a partnership with the Interdisciplinary Nanoscience Center (iNANO) at Aarhus University, Denmark. iNANO is equipped with state-of-the-art facilities for surface characterisation and optical- and AFM imaging of biological samples.

The PhD combines interdisciplinary science and global innovation. The Open Innovation Hub for Antimicrobial Surfaces is at the forefront of translating nanoscale scientific knowledge into innovation and is one of the four core partners of the £23M National Biofilm Innovation Centre (NBIC) (www.biofilms.ac.uk). The student will enrol in NBIC's **Doctoral Training Centre** which trains interdisciplinary PhD researchers at the Interface of Physical and Life Sciences to understand the behaviour of microbes at surfaces that are central to the global challenges of Antimicrobial Resistance (AMR), Health, Food Security, Clean Water and Energy.

Eligibility: This position is open to **UK or a limited quota of EU students only** with the equivalent of at least a 2.1 Honours or Masters degree in Biophysics, Chemistry, Biosciences, Nanoscience, Materials Science or Engineering. An interview will be undertaken with suitable candidates before an offer is made.

Fees and a stipend for 3.5 years will be paid provided eligibility is met.

How to apply: Applicants should apply by e-mailing Lucy Jones (email: Lucy.Jones2@liverpool.ac.uk). You should submit an up to date CV and cover letter with names of at least 2 academic referees.

Deadline: 30th October 2022. Candidates will be evaluated as applications are received, and the position may be filled before the deadline if a suitable candidate is identified.