

Research Associate Position in Fluid Mechanics Modelling

Department of Mathematics, University of Manchester, UK

Subject: Modelling of surfactant-laden turbulent flows over superhydrophobic surfaces

Anticipated start date: April 2021

Duration: 2.5 years

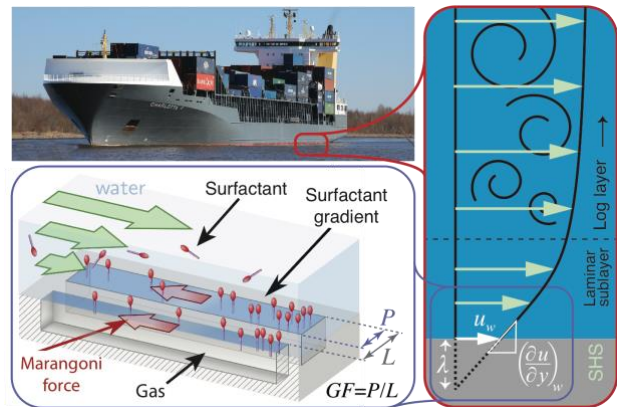
Salary range: £32,816 to £40,322 per annum, depending on relevant experience

Supervisors: Dr Julien Landel (Julien.Landel@Manchester.ac.uk) and Prof. Oliver Jensen

Application: jobs.manchester.ac.uk

Closing date: 15 January 2021

The position is supported by a joint UK-US recently-awarded EPSRC-NSF Grant “Surfactant impact on drag reduction of superhydrophobic surfaces in turbulent flows”. The Research Associate will work closely with Prof. O. E. Jensen and Dr J. R. Landel, who have strong expertise in the modelling of surfactant flow phenomena and flows over superhydrophobic surfaces. The Research Associate will also work in collaboration with Profs Frederic Gibou and Paolo Luzzatto-Fegiz at the Department of Mechanical Engineering at the University of California Santa Barbara, who have been awarded co-funding for this project.



The project lies at the interface between applied mathematics, continuum mechanics, fluid mechanics, and multi-scale physics. The main aims are to develop mathematical models using approximation techniques to describe the impact of surfactant through the Marangoni effects on the turbulent flow above a superhydrophobic surface. The post-holder will develop low-order models to describe the key parameters and physics in the problem. The team at UCSB will develop in a parallel effort direct numerical simulations of turbulent flows above superhydrophobic surface inclusive of surfactant. The numerical simulations at UCSB will provide a wealth of data at regimes previously unexplored, and crucial for the development of the low order models at Manchester.

The successful applicant will hold (or be about to complete) a PhD in Applied Mathematics, Physics or a closely related field. The ideal candidate will have a solid track record of publications relevant to the project area, and a strong aptitude for interdisciplinary research. Please see further particulars in the Person Specification document available at the [online application site](#).

Informal inquiries about the position, the project or the interview process can be made by emailing Dr Julien Landel at Julien.Landel@Manchester.ac.uk.