PhD studentship (42 months): Molecular self-assembly and friction in lubricants

Academic Supervisor: Dr Philip J. Camp, School of Chemistry, University of Edinburgh

Industrial Supervisor: Professor Peter J. Dowding, Infineum UK Ltd

A 42-month, industrially funded PhD studentship is available in the School of Chemistry at the University of Edinburgh under the supervision of Dr Philip J. Camp and Professor Peter J. Dowding. The project will involve atomistic molecular dynamics of friction-reducing additives in lubricants, in the bulk-liquid phase and at liquid-solid interfaces under quiescent and shear conditions. The aim is to understand the interplay of additive self-assembly and surface adsorption, and its connection with frictional properties. An important feature of the project is the close connection between the simulation work and experimental work being carried out by Infineum, such as on characterising self-assembled aggregates by small-angle neutron scattering. Some examples of published work arising from the long-standing collaboration between the University of Edinburgh and Infineum are given below.


A full description of the Edinburgh group’s activities is given here: [http://www.molsim.chem.ed.ac.uk/]

The studentship is fully funded for 42 months from September 2017 or as soon as possible thereafter, and covers tuition fees and an annual stipend for a candidate from the UK, European Economic Area, or Switzerland who satisfies the criteria for ‘home’ fees as defined here: [https://goo.gl/AtPlI3]

The successful candidate will possess, or expect to obtain, a first or upper-second class undergraduate degree (or equivalent) in chemistry, physics, or chemical engineering. Essential qualities include basic knowledge of statistical mechanics and the properties of soft condensed matter, and familiarity with a programming language such as Fortran or C/C++. Some prior experience or exposure to molecular-simulation techniques and an interest in GPU computing are desirable. Other essential attributes are good presentation and communication skills (written and oral). In the first instance, informal enquiries (accompanied by a CV) should be directed to:

Dr Philip J. Camp
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Formal applications are made through the University's EUCLID system, as outlined here: [http://www.chem.ed.ac.uk/studying/postgraduate-research/applications-and-entry-requirements]

The position will remain open until filled.