

EPSRC supported PhD with Integrated Studies. Bottom-up method to optimize the development of specialty chemicals

School of Chemical Engineering, University of Birmingham

Supervisors: Dr Zhenyu Jason Zhang & Prof. Jon Preece

Ability to deposit chemical species in a complex mixture selectively and effectively onto target substrates in contact, consequently alter the surface functionality, and remove them with certain trigger mechanisms, is highly desirable for the development of 'smart' formulated chemical products. Conventional 'top-down' approach involves synthesizing a wide range of chemicals possessing various functional groups followed by macroscopic evaluation and post examination. This could be time consuming and labour intensive depending on the size of the database and environmental factors to be examined. To enhance the efficiency of such screen and optimization processes for the development of innovative specialty chemicals, we would like to implement a 'bottom-up' approach where chemicals are developed based on quantitative information concerning their molecular interactions with the target surfaces that is not accessible by the conventional techniques. As such, characterizing the interfacial behaviour of soft matter, including both surfactants and polymers, under realistic conditions is of paramount importance to Innospec.

Tax free bursary of approx. £17,600 p.a. plus tuition fees paid.

Funding Notes

To be eligible for EPSRC funding candidates must have at least a 2(1) in an Engineering or Scientific discipline or a 2(2) plus MSc. Please email your c.v. to r.w.greenwood@bham.ac.uk. For more details on the Engineering Doctorate scheme please visit <http://www.birmingham.ac.uk/schools/chemical-engineering/postgraduate/eng-d/index.aspx>