4-year fully funded PhD studentship (Wessex Chemical Factors - Bristol)

"Programmed longevity of antimicrobial polymer nanofilms: Macromolecular architecture, nanostructure, and antimicrobial efficacy"

Developing surface thin films with long-lasting antimicrobial protection is critically important to maintaining high hygiene standards in the post pandemic era. It will also have significant environmental benefits through reduced usage of chemical formulations. Jointly funded by Wessex Chemical Factors Ltd and the Everett fund in Bristol, the project will aim to understand the nanostructures of novel polymer coatings that underpin their newly discovered long-lasting antimicrobial efficacy, preventing the spread and growth of pathogens over a prolonged period of time. Advanced physicochemical methods will be employed to study the molecular structure of the polymer nanofilms (thickness, topography, nanoporosity, and uniformity/inhomogeneity) and correlate the surface structural and chemical characteristics with their antimicrobial activity. Different surface coating methods will also be explored. In particular, both equilibrium and dynamic in-plane and out of plane interfacial structures formed on hydrophilic and hydrophobic substrates will be probed in detail using *in situ* X-ray and neutron surface scattering at central facilities in the UK and EU, complemented by advanced high resolution microscopy techniques. The student will also have the opportunity to undertake highly valuable secondments at Wessex Chemical Factors Ltd, working with a dedicated team and developing knowledge and skills in an innovation-oriented environment, which will ideally place the student for future long-term technology and product development career at Wessex.

Potential applicants (UK residents or EU citizens with settled status) should have a strong 4-year degree in Chemistry, Physics, Engineering, or Biochemistry. International applicants with exceptional academic records can also be considered. To apply to Bristol Chemistry, please follow the link here. For further information, please email academic supervisor Professor Wuge H. Briscoe wuge.briscoe@bristol.ac.uk and industrial supervisor Mr Mike Borowski mike@wessexchemicalfactors.co.uk; or chem-pg-admissions@bristol.ac.uk. Further information on Wessex Chemical Factors Ltd can be found at https://www.wessexchemicalfactors.co.uk/.