

2015 Rideal Meeting: Polymers in colloid science



SPEAKER ABSTRACTS

Manipulating Self Assembly in surfactant, lipid and peptide systems

Patrick G. Hartley

CSIRO Energy & Manufacturing Flagships
Bayview Avenue, Clayton VIC 3169, Australia

Self assembly behaviour is implicit in the structure and function of many types of biological and synthetic soft matter, and is exquisitely determined by the interplay between many forms of non-covalent interactions in these systems. It follows that the effective design of functional materials based on soft matter has much to gain from both understanding and manipulating such non-covalent interactions. Starting with relatively simple surfactant amphiphile systems, we discuss the interplay between molecular structural design and self assembly behaviour in lyotropic liquid crystalline systems, the manipulation of both structure and function in these systems using electrostatic, steric and polymer-surfactant interactions and finally some insights into their behaviour in biological systems. Recent extensions of this work looking at molecular structure directed self assembly in short peptide and protein systems will also be discussed.