

# **Mesostructured polymer-surfactant film formation at the air-solution interface**

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Solutions of soluble polymers with surfactants are known to show a variety of adsorption behaviours at interfaces. We have been investigating the use of this adsorption phenomenon to form solid nanostructured films of polymer-surfactant composites at the air-solution interface. These films form uniformly across the whole interface and contain ordered nanoscale structures equivalent to the liquid crystalline phases found in concentrated surfactant solutions. I will report our latest investigations on the formation mechanisms of these films and our studies of the properties of the membranes in situ and after they have been recovered from the solution surface. Initial steps towards applications of these films for nanomaterials synthesis, encapsulation/release and to support sensor species will also be discussed.