Active Control of Surfactants

Nicholas L. Abbott
Department of Chemical and Biological Engineering
University of Wisconsin-Madison
1415 Engineering Drive
Madison WI 53706
Tel: USA+608-265-5278
Email: abbott@engr.wisc.edu

This presentation will describe approaches leading to reversible control over the self-assembly of surfactants at interfaces and in bulk solution by using redox-active and light-responsive surfactants in combination with electrochemical and photophysical methods. Because the changes in state of the surfactants can be localized and modulated as a function of time, these various approaches provide ways to generate well-defined gradients in properties of aqueous surfactant systems. This talk will describe the dynamic and equilibrium properties of these novel surfactant systems, and sketch results that illustrate the potential applications of these surfactants in a range of chemical processes including micro-scale separations and biomolecule delivery strategies.