

### **33c Interfacial Flows Driven by Redox-Active Amphiphiles**

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This paper will report on Marangoni flows generated at the surfaces of aqueous solutions by using redox-active amphiphiles in combination with electrochemical methods. First, when using amphiphiles that are insoluble in aqueous phases, electrochemical oxidation of the amphiphiles leads to an increase in surface pressure exerted by the amphiphiles, which in turn can drive Marangoni flows. Experimental evidence based on cyclic voltammetry supports the existence of these surface flows. Second, when using soluble amphiphiles that change their partitioning between a surface and bulk solution upon electrochemical oxidation, surface driven flows are demonstrated to be controlled by the kinetics of desorption of the amphiphiles from the interface. The use of these electrochemically-controlled surface flows to achieve rapid mixing in small volumes of liquid will be discussed