

Abstract Submitted  
for the DFD11 Meeting of  
The American Physical Society

**Spreading, retraction, and sustained oscillations of surfactant-laden lenses**<sup>1</sup> OMAR MATAR, GEORGE KARAPETSAS, RICHARD CRAS-TER, Imperial College London — We examine the dynamics of surfactant laden-lenses spreading over liquid substrates. We use the lubrication theory in combination with models for the spreading process, the effects of surfactant at the contact line and the sorption kinetics above and below the critical micelle concentration. Our model is solved numerically using a finite-element formulation. We carry out a full parametric study and simulate a wide range interesting behaviour ranging from complete spreading of the lens, to spreading followed by retraction, to sustained pulsating oscillations.

<sup>1</sup>EPSRC Grant number EP/E046029/1

Omar Matar  
Imperial College London

Date submitted: 10 Aug 2011

Electronic form version 1.4