

Abstract Submitted
for the DFD05 Meeting of
The American Physical Society

Marangoni instability of thin films on horizontal and inclined substrates ALAIN BERGEON, IMFT, EDGAR KNOBLOCH, Department of Physics, UC Berkeley — Nonlinear evolution of the Marangoni instability of thin liquid films is studied via direct integration of the thin film equation to identify the states selected dynamically by the instability. On a horizontal substrate the instability is subcritical and proceeds to rupture. On slightly inclined substrates rupture may occur depending on parameter values and initial conditions. In other cases the instability evolves into arrays of solitary waves with both periodic and nonperiodic time-dependence. The results extend earlier work (U. Thiele and E. Knobloch, *Physica D* 190, 213, 2004) into the dynamical regime.

Edgar Knobloch
University of California, Berkeley

Date submitted: 02 Aug 2005

Electronic form version 1.4