Abstract Submitted
for the DFD07 Meeting of
The American Physical Society

**Spatially localized states in Marangoni convection in binary mixtures** EDGAR KNOBLOCH, University of California at Berkeley, PAULINE ASSEMAT, ALAIN BERGEON, IMFT-UPS-UMR-CNRS 5502 — Two-dimensional Marangoni convection in binary mixtures is studied in periodic domains with large spatial period in the horizontal. For negative Soret coefficients convection may set in via growing oscillations which evolve into standing waves. With increasing amplitude these waves undergo a transition to traveling waves, and then to more complex waveforms. Out of this state emerge stable stationary spatially localized structures embedded in a background of small amplitude standing waves. The resulting states are related to time-independent spatially localized states obtained by numerical continuation, and the role of the background waves in sustaining the states is elucidated. Direct numerical simulation in time is used to explore the dynamics both inside and outside of the associated pinning region.

Edgar Knobloch
University of California at Berkeley

Date submitted: 31 Jul 2007 Electronic form version 1.4