

“Icicles, washboard road and meandering syrup”

Prof. Stephen Morris
Department of Physics
University of Toronto



This talk will describe three recent experiments on emergent patterns in three diverse physical systems.



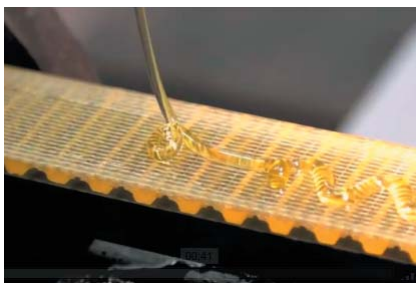
Icicles

The overall shape and subsequent rippling instability of icicles is an interesting free-boundary growth problem. It has been linked theoretically to similar phenomena in stalactites. We attempted to grow ideal icicles and determine the motion of their ripples.



Washboard road

Washboard road is the result of the instability of a flat granular surface under the action of rolling wheels. The rippling of the road, which is a major annoyance to drivers, sets in above a threshold speed and leads to waves which travel down the road. We studied these waves, which have their own interesting dynamics, both in the laboratory and using 2D molecular dynamics simulation.



Meandering syrup

A viscous fluid, like syrup, falling onto a moving belt creates a novel device called a “fluid mechanical sewing machine.” The belt breaks the rotational symmetry of the rope-coiling instability, leading to a rich zoo of states as a function of the belt speed and nozzle height.

4:00 p.m.

Thursday, October 8, 2009

Samsung Auditorium, Liquid Crystal Institute

Visit our Website for Seminar Listings--<http://www.lci.kent.edu/seminars.html>

Refreshments served at 3:45