

# THE CRM APPLIED MATHEMATICAL AND PHYSICS (CAMP) SEMINARS



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## **Films, Rings, and Rivulets: Instabilities of Liquid Metals on Nanoscale**

### **Abstract:**

We will start by discussing techniques used to model thin films and rivulets within the framework of long-wave theory. The emphasis will be on the interactions of various types of instabilities in the geometries involving fluid fronts and contact lines.

In the second part of the talk, we apply our results to breakup of nano-scale metal films, rivulets and rings liquefied by repeated laser pulses. An additional aspect of the problem is the fact that the details of metal/substrate interaction are not well known, and we will discuss our attempts towards solving an inverse problem of deducing this interaction from the experimentally observed breakup of metal films. Then, we will consider the instability development of patterned rivulets and rings, and discuss how well the long-wave theory captures the experimental results.

We will conclude by discussing preliminary results in the two directions

- (i) directed assembly of metal geometries on nanoscale, and
- (ii) modeling based on full Navier-Stokes formulation.

**Date:** June 25, 2013

**Place:** Room C1/028

**Time:** 15:00

