

# THE CRM APPLIED MATHEMATICAL AND PHYSICS (CAMP) SEMINARS



CENTRE DE RECERCA MATEMÀTICA

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## Roughness and wetting at microscales

### Abstract:

Controlling the advancement of a fluid inside a microchannel is one of the main issues in microfluidics. At ever smaller scales the surface to volume ratio becomes increasingly large and system frontiers play a crucial role. In this situation surface properties of the microchannel, such as wetting and roughness, are of fundamental importance since they would largely determine the large resistance to flow. We will discuss fluid front advancement in a microchannel with natural roughness. Pinning and avalanches of the front will be characterized by an extreme-value Gumble distribution of rare-events. We will also describe wetting-induced fluid entrainment by advancing contact lines on surfaces. A new phenomenon that we dub superconfinement will be discussed.

**Date:** June 4, 2015

**Place:** Room C1/028

**Time:** 12:00

