

PHYSICAL MATHEMATICS SEMINAR

The Dynamics of Bouncing Droplets onto Vibrating Liquid Interfaces

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ABSTRACT:

A small droplet falling onto a fluid bath may behave like a ball dropped onto the ground, bouncing several times before eventually coming to rest on the bath surface. Ultimately, it collapses into the bath due to gravity. But when the bath surface is vibrated vertically, the droplet may bounce indefinitely without ever merging with the bath.

Bouncing has been investigated in a variety of geometries. Considerable efforts have been directed towards characterizing the bouncing of both solid objects and droplets on various fluids and solid substrates. In this seminar, I will discuss in detail some of these configurations, insisting on the conditions required to observe sustained bouncing. Although the models vary from one configuration to another, they share the same ingredients, and the behaviors they predict are often qualitatively similar. A major point of this talk will be to present my recent work on a minimal model, the partially elastic ball that catches most of the physics encountered in more complex configurations. This model exhibits some amusing behaviors when the collisions are perfectly inelastic.

TUESDAY, OCTOBER 20, 2009

2:30 PM

Building 2, Room 105

*Refreshments at 3:30 PM in Building 2, Room 290
(Math Department - Common Room)*



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