

**Center for Fluid Mechanics, Division of Applied Mathematics
Fluids, Thermal and Chemical Processes Group, School of Engineering
Joint Seminar Series**

**Shmuel Rubinstein
Harvard University
School of Engineering and Applied Sciences
Cambridge, MA**

Droplet Impact on a Surface Mediated by the Rupture of a Thin Air Film

Droplets impacting on surfaces are common in our everyday life from raindrops splashing on car windows to inkjets printing on paper. Surprisingly, however, many aspects of the dynamics of droplet impact are not well understood; even the initial impact of the drop remains controversial. Here I discuss a new experimental approach and directly measure the interface between the drop and the surface. I show that the drop initially skates along a very thin film of air before contacting the surface, consistent with recent predictions. Moreover, the dynamics of the drop impact are governed by the ultimate rupture of this thin film of air, which itself exhibits a fascinating range of instabilities; these dynamics can be directly observed by refining these new experimental techniques. In this talk I describe these experiments and report the results.

TUESDAY, FEBRUARY 8, 2011

4:00 PM

Barus & Holley, Room 190