REVISED

PHYSICAL MATHEMATICS SEMINAR

MULTIPLE COALESCENCE AT LIQUID INTERFACES

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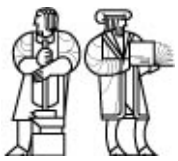
ABSTRACT:

We investigate numerically the dynamics of a drop slowly coming into contact with a reservoir of the same fluid. In certain cases, the ensuing coalescence leaves behind a smaller daughter drop which then bounces on the interface. We focus on cases where the drop repeatedly coalesces and pinches off, forming a sequence of progressively smaller drops. We determine the regime in which such a cascade can occur and describe for the first time the details of the mechanism behind multiple coalescence. Viscous damping of capillary waves is found to be crucial in determining whether pinch off will occur or not, despite the fact that only a small fraction of the available energy is dissipated by viscous effects. Applications of our simulations to bubble pinch off from a nozzle and mixing in micro-capillaries are also shown.

TUESDAY, NOVEMBER 1, 2005
2:30 PM
Building 3, Room 370

Refreshments at 3:30 PM in Building 2, Room 349.



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