

The SUMO Speaker Series for Undergraduates

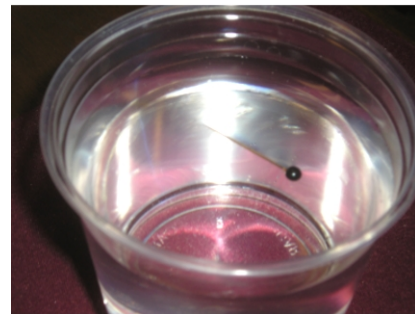
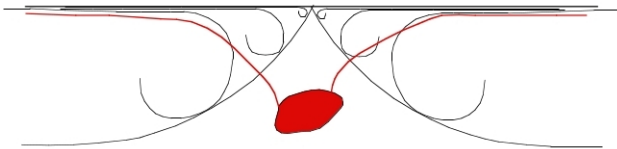
Thursday, February 27

4:15-5:05, Room 380C

(Food Provided)

**The Mathematics of Floating (And Sinking) Bodies:
some curious predictions**

Robert Finn



Abstract

Aristotle wrote: *A large flat body, even of heavy material, will float on water; but a long thin one such as a needle will always sink.* He was wrong on both counts. A century later Archimedes developed a theory of floating that applies well for design of boats but is abysmally wrong for small particles. The concept of surface tension introduced in the eighteenth century has led to new and striking insights, but major and immediate questions remain unsettled. A given object will float in some orientations, and sink in others. Current theory leads to new and exotic nonlinear problems, which have largely resisted established procedures. I will discuss some situations in which progress has been achieved, and also some curious anomalies. Theory yielding accurate predictions remains a rare event.

sumo.stanford.edu/speakers