



# PHYSICS and ASTRONOMY

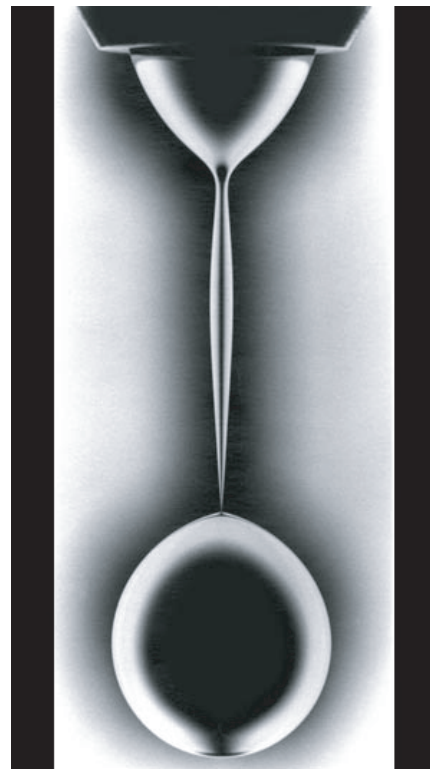
presents

## the 7<sup>th</sup> Walter Selove Lectureship in Experimental Physics

### SIDNEY NAGEL

Stein-Freiler Distinguished Service Professor,  
University of Chicago

Many complex phenomena are so familiar that we forget to ask whether or not they are understood. The Colloquium will discuss several familiar cases of effects that are so ubiquitous that we hardly realize that they defy our normal intuition about why they occur. The examples of poorly understood classical physics that I will choose can all be viewed at a breakfast table: the anomalous flow of granular material, the long messy tendrils left by honey spooned from one dish to another and the pesky rings deposited by spilled coffee on a table after the liquid evaporates. These are all non-linear hydrodynamic phenomena which not only are of technological importance but can also lead the inquisitive into new realms of physics.



The seminar will address two questions: (a) how does a particulate system jam and develop a yield stress in a disordered state and (b) are there similarities between the variety of ways in which such a jammed particulate solid can fail and return to the fluid state. I will describe our search for similarities between failure caused by changing two different control parameters: decreasing the density at zero applied shear stress and increasing the shear stress at constant density.

#### Jamming and Failure: Solids on the Edge

Tuesday, September 14<sup>th</sup>, 2001

12:00PM

David Rittenhouse Laboratory, Rm2N36  
209 South 33<sup>rd</sup> Street

#### Physics at the Breakfast Table

Wednesday, September 15<sup>th</sup>, 2004

4:00PM

David Rittenhouse Laboratory, RmA8  
209 South 33<sup>rd</sup> Street

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