

**CENTER FOR FLUID MECHANICS
AND
THE FLUIDS, THERMAL AND CHEMICAL PROCESSES GROUP
OF
THE DIVISION OF ENGINEERING
SEMINAR SERIES**

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Structure, Rheology, and Migration in Concentrated Suspensions

Concentrated suspensions of particles have many applications in engineering and nature, ranging from the composite material forming the fuel of the booster engines of the space shuttle to the slurry of blood cells flowing through our arteries. Despite this, it is only in recent years that the mechanisms leading to non-uniformities in concentration distributions have become fully understood. In this talk we will explore the behavior of concentrated suspensions by focusing on the curious behavior of a suspension flowing behind an advancing meniscus. Through experiment and theory we show how the nature of particle interactions in a sheared suspension lead to asymmetric local structure, non-Newtonian rheology, particle migration, convective instabilities, and macroscopic concentration non-uniformities. Examples of such behavior will be demonstrated.

TUESDAY, April 15, 2008

Barus & Holley, Room 190

3:00pm