



**TIFR Centre for Interdisciplinary Sciences,  
Narsingi, Hyderabad 500075**

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## **Seminar**

**Onset of shear flow in confined soft amorphous  
materials**

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**Abstract:** Understanding the mechanisms of yielding in soft glasses is important for a variety of rheological applications. In recent times, it has been proposed that spatially correlated events drive the flow of such materials. Using numerical simulations, we explore this scenario for the onset of flow in a model colloidal system (confined between rough walls) in the presence of different external stress fields. We show that, for Couette flow, one observes a pronounced creeping regime near the yield stress, which is associated with strong spatio-temporal heterogeneity in dynamics. For the Poiseuille flow, we find that the limiting value of the wall-stress (at which steady flow is observed) shifts to much larger values, compared to the case of the Couette flow. A recently proposed non-local flow model, which takes into account co-operative triggering of events, can be used to rationalise this difference in response observed in the simulations.

***Date: Monday, January 14<sup>th</sup> 2013***

***Time: 04:00PM (Tea/Coffee at 03:30PM)***

***Venue: Conference Hall, TCIS***

***All are cordially invited***