TIFR Centre for Interdisciplinary Sciences
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Seminar

Status of Mode-Coupling Theory of Glassy Dynamics: Activated Events and Nonperturbative Phenomena

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Despite the existence of many experiments, simulations and theories, we still don't understand the actual nature of glassy dynamics and the glass transition. One of the most competing theories, known as mode-coupling theory (MCT), for the dynamics of glassy systems gives a number of predictions, which are in excellent agreement with simulations and experiments when the system is away from the transition point. However, the theory fails close to the transition. The reason for this failure is attributed to the absence of activated events within MCT. In this talk I will show that MCT actually contains some kind of activated processes. I will further show, through a mapping with the random field Ising model (RFIM), that certain types of nonperturbative phenomena are absent within MCT. Thus MCT transition can, at best, be a mere crossover in finite dimensional systems.

Monday, Nov 9th 2015

4:00 PM (Tea/Coffee at 3:45 PM)

Seminar Hall, TCIS