

## **Students' Annual Seminar**

# **Block Analysis for the Calculation of Dynamic and Static Length Scales in Glass-Forming Liquids**

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We present block analysis, an efficient method of performing finite-size scaling for obtaining the length scale of dynamic heterogeneity and the point-to-set length scale for generic glass-forming liquids. This method involves considering blocks of varying sizes embedded in a system of a fixed (large) size. The length scale associated with dynamic heterogeneity is obtained from a finite-size scaling analysis of the dependence of the four-point dynamic susceptibility on the block size. The block size dependence of the variance of the  $\alpha$  relaxation time yields the static point-to-set length scale. The values of the obtained length scales agree quantitatively with those obtained from other conventional methods. This method provides an efficient experimental tool for studying the growth of length scales in systems such as colloidal glasses for which performing finite-size scaling by carrying out experiments for varying system sizes may not be feasible.

***Thursday, Jan 25<sup>th</sup> 2018***

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

***Seminar Hall, TIFR-H***