

## **Seminar**

### **The elusive connection between pair structure and dynamics in the supercooled liquids**

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Usually the pair structure plays a key role in different theories of liquid and is supposed to provide all the thermodynamic quantities and also the dynamics. However, in supercooled liquid, although the dynamics changes over orders of magnitude, the change in structure is small and this observation raises the question about the role of structure in the dynamics. Studies showing that two systems which have very similar structure have orders of magnitude difference in dynamics at low temperatures further strengthens the argument that pair structure does not play any role in the slowing down of the dynamics. The common wisdom in supercooled liquid community is that many body correlation drives the slowing down of the dynamics. In this talk, based on our work I will present a completely new and counter intuitive understanding about the role of pair and higher order correlations in the dynamics. We find that slow dynamics in supercooled liquid is driven by the pair correlation and many body correlation helps the system to explore larger phase space and thus speed up the dynamics. I will also discuss a recently developed mean field theory and show that the information of the well-known dynamical transition temperature is embedded in the pair structure of the liquid.

***Wednesday, May 9<sup>th</sup> 2018***

***4:00 PM (Tea/Coffee at 03:30 PM)***

***Auditorium, TIFR-H***