

## **Seminar**

### **Biological Phase Transitions: Where Chemistry and Physics Meet Biology**

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Cells contain membrane-delimited organelles that compartmentalise cellular constituents and regulate biochemistry. A growing body of fascinating research now reveals that there is also an alternative mechanism of spatiotemporally-controlled intracellular compartmentalisation and organisation via liquid-liquid phase separation of proteins and nucleic acids into non-canonical membrane-less organelles. These functional liquid-like biomolecular condensates can undergo aberrant irreversible phase transitions into gel-like or solid-like amyloid aggregates associated with a range of debilitating human diseases. I will describe our multidisciplinary approach involving cell and molecular biology, vibrational Raman spectroscopy, single-molecule biophysics and super-resolution imaging to decipher the fundamental molecular drivers of biological phase transitions involved in physiology and disease.

***Friday, Dec 8<sup>th</sup> 2023***

***10:30 AM (Tea / Coffee 10.15 AM)***

***Auditorium, TIFR-H***