

Students' Annual Seminar

On the similarities between actively driven and sheared glasses

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Investigating the behaviour of glasses under various external loads continues to be an intriguing area of research, with clear practical implications. Computational studies offer valuable insights into the phenomena that emerge under such conditions.

In my talk, I will discuss two distinct studies. We'll explore how *activity* and *shearing* show strikingly similar manifestations in amorphous materials across both investigations. Specifically, in the first study, I will discuss cavitation instabilities in glasses and how these instabilities selectively couple more effectively to certain deformation modes over others [1]. In the second part, I will focus on how activity can be used to enhance the annealing process, and consequently, offer a means to fine-tune the ductility of glasses. In particular, by performing tensile testing, I will demonstrate how employing various activity induced annealing protocols can alter the mode of failure from ductile to brittle type.

References:

[1] Umang A. Dattani, Rishabh Sharma, Smarajit Karmakar, Pinaki Chaudhuri "Cavitation instabilities in amorphous solids via secondary mechanical perturbations." URL <https://doi.org/10.48550/arXiv.2303.04529>

Monday, Apr 24th 2023

4:00 PM (Tea / Coffee 3.45 PM)

Seminar Hall, TIFR-H