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TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS Condensed Matter Seminar

Title : Constraint-induced arrested classical many-body chaos and directed percolation

Speaker : Sthitadhi Roy, (ICTS – TIFR, Bengaluru)

Date : Thursday, October 13, 2022

Time : 3:00 pm (IST)

Abstract : In this talk, I will show that kinetic constraints can drive a 'dynamical phase transition' in an otherwise chaotic spin system, separating a delocalised phase, where the classical OTOC propagates ballistically, from a localised phase, where the OTOC does not propagate at all and the entire system freezes. This is unexpected given that all spins configurations are dynamically connected to each other. We show that localisation arises due to the dynamical formation of frozen islands, contiguous segments of spins immobile due to the constraints, dominating over the melting of such islands. In the second part of the talk, I will discuss how this problem can be mapped onto a directed percolation (DP) problem and show that the constraint-induced phase transition indeed lies in the DP universality class in both one and two spatial dimensions.

[References: arXiv:2202.11726,arXiv:2206.07724]

Venue : Offline: Madhava Lecture Hall

Online: Please click on the below link to join the meeting

https://icts-res-in.zoom.us/j/81875284632?pwd=MzVTM2hOSzNPZktzeldNOEJyVXBGdz09
Meeting ID: 818 7528 4632

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