



ICTS Condensed Matter Seminar

Title : Universal dynamics across a phase transition: from condensed matter to quantum computing

Speaker : Adolfo del Campo (University of Luxembourg)

Date : Friday, 09th February, 2024

Time : 02:15 PM (IST)

Abstract : When a quantum phase transition is crossed in finite time, the breakdown of adiabatic dynamics leads to the formation of topological defects, such as domain walls in spin systems and vortices in superfluids. The average density of defects scales with the quench rate following a universal power-law predicted by the Kibble-Zurek mechanism. Physics beyond the Kibble-Zurek mechanism can be probed by characterizing the full counting statistics of topological defects and provides useful heuristics for adiabatic quantum computation. Its study can be used to benchmark the performance of a quantum processor, as we show by analyzing the experimental data from a D-Wave quantum annealer.

Venue : Offline: Emmy Noether Seminar Room

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

<https://icts-res-in.zoom.us/j/91998920438?pwd=QzdzdkhINEhPK3RTb1huYWFLcDc4dz09>

Meeting ID: 919 9892 0438

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