

Massachusetts Institute of Technology
Department of Physics

Condensed Matter Theory Seminar

" Universality of Entanglement Dynamics"

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Abstract: Characterizing the non-equilibrium dynamics of quantum many-body systems is, in general, a daunting task. However, its understanding is crucial for demystifying fundamental questions such as the mechanism of thermalization for foundational quantum statistical mechanics and the quantum nature of black hole formation and evaporation. Entanglement has proven to be an illuminating tool for classifying complex many-body phenomena. In this talk, I will present universal descriptions of entanglement dynamics in integrable and chaotic quantum systems. While the former is described by the motion of quasi-local objects, the latter must be described by a non-local membrane-like object. I will show that these frameworks accurately account for fine-grained entanglement measures such as mutual information, logarithmic negativity, and reflected entropy for a wide range of systems including random unitary circuits, conformal field theories, and spin chains.

12:00pm noon
Tuesday, April 7, 2020
Zoom seminar (details tba)