Massachusetts Institute of Technology
Department of Physics

Condensed Matter Theory Seminar

"Emergent irreversibility and entanglement spectrum statistics"

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Abstract: We study the problem of irreversibility when the dynamical evolution of a many-body system is described by a stochastic quantum circuit. Such evolution is more general than a Hamitonian one, and since energy levels are not well defined, the well-established connection between the statistical fluctuations of the energy spectrum and irreversibility cannot be made. We show that the entanglement spectrum provides a more general connection. Irreversibility is marked by a failure of a disentangling algorithm and is preceded by the appearance of Wigner-Dyson statistical fluctuations in the entanglement spectrum. This analysis can be done at the wave function level and offers an alternative route to study quantum chaos and quantum integrability.

12:00noon
Tuesday, May 20, 2014
Duboc Seminar Room (4-331)

Host: Maksym Serbyn