Massachusetts Institute of Technology
Department of Physics

Condensed Matter Theory Seminar

"Scrambling and chaos in quantum many-body systems"

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Abstract: The growth of commutators of initially commuting local operators diagnoses the onset of chaos in quantum many-body systems. I will discuss the onset of scrambling in two broad classes of systems: for the O(N) non-linear sigma-model in (2+1)-dimensions and for a weakly interacting diffusive metal. In both cases chaos spreads in a ballistic fashion with a butterfly velocity that acts as a speed limit for the propagation of quantum information. I will comment on various interesting and universal aspects of the growth (Lyapunov) exponent and the butterfly velocity for these models.

12:00pm
Friday, April 28, 2017
Duboc Room (4-331)

Host: Michael Pretko