

# *Chez Pierre*

Presents ...

**Monday, November 13, 2017**

**12:00pm Noon**

**MIT Room 4-331**

## **Chez Pierre Seminar**

**Dmitry Abanin – University of Geneva**

**“Chiral Floquet Insulator: A Non-Equilibrium Phase of Matter”**

Understanding microscopic workings of thermalization in quantum systems is a central issue in statistical mechanics. Recently, it was established that not all systems thermalize: many-body localized (MBL) systems avoid that fate, owing to their emergent integrability. The fact that MBL systems circumvent the limitations imposed by statistical mechanics enables new, essentially non-equilibrium phases of matter. In this talk I will introduce an example non-equilibrium phase in two dimensions – the Chiral Floquet Insulator (CFI), which exhibits protected, chiral edge states even at high temperature, while states in the bulk are many-body localized. In addition to the quantized edge transport, CFI shows other quantized observables, such as magnetization density. Further, CFI is an example of the system in which the topology of the sample controls the competition between localized bulk states and thermalizing edge states. I will also discuss other examples of MBL-enabled phases, and introduce an approach to study their stability and phase boundaries.

