



# Münchner Physik- Kolloquium

Sommer  
2019

## Quantum thermalization of closed systems and its breakdown

**Dr. David Luitz**, *Max Planck Institute for the Physics of Complex Systems, Dresden*

Monday, 17 June 2019, 17:15 h

Hörsaal H 030, Fakultät für Physik der LMU, Schellingstraße 4, München

What is the generic behavior of interacting quantum systems far away from the thermodynamic equilibrium? Recent theoretical and experimental progress has led to a number of fascinating insights into this fundamental question, providing a deeper understanding of how and under which circumstances quantum statistical mechanics can emerge in the absence of a heat bath. It is now understood that quantum many-body chaos generically leads to a rapid approach to an equilibrium state. However, counterintuitively, strong disorder can suppress chaos and completely arrest transport, leading to a nonequilibrium many-body localized state of matter. In the vicinity of the localized phase, the dynamics of quantum many-body systems can become arbitrarily slow, leading to anomalous transport properties and anomalous spreading of quantum information.

I will present the current understanding of generic isolated quantum many-body systems in the presence of disorder and discuss under which conditions and in which sense they can reach the thermodynamic equilibrium.

## Student event: Meet the speaker

We invite you to a **student-only** discussion-round with Dr. David Luitz before his Munich Physics Colloquium talk.

*Be curious and feel free to ask any question.*

Monday, 17 June 2019, 16:00 h,

Room H 522 (5th floor), Fakultät für Physik der LMU, Schellingstraße 4, München

