

The Vienna Doctoral Programme on Complex Quantum Systems
invites you to a

Seminar Talk

by

Ulrich Schneider

Jesus College Cambridge, UK

***“Exploring quantum thermalization and its breakdown using
ultracold atoms in optical lattices”***

The out-of-equilibrium dynamics of interacting many-body systems presents probably the most challenging problem in quantum physics. Its implications range from quantum computing over thermalization to novel transient effects and the formation of order. Traditionally, however, out-of-equilibrium dynamics was confined to short transients, since typical systems would quickly relax back into well-understood thermal states.

One major exception is Many-Body Localization (MBL)—the interacting extension of Anderson localization—where particles are localized by the presence of a disordered potential and therefore never relax to a thermal state. I will discuss how we can use the unique properties of ultracold atoms in studying these topics and present our experimental realization of MBL of interacting fermions in the presence of quasi-periodic disorder in 1D and 2D. I will close by discussing the slow dynamics visible on approach to this transition as well as its fate in an open quantum system.

**Monday, 10 December 2018,
16:30h get-together with coffee and snacks!**

Lise Meitner Hörsaal, Strudlhofgasse 4, 1st floor, Vienna

The seminar talk will be preceded by a CoQuS Student talk at 17:00h
by

Rui Vasconcelos

University of Vienna

“Scalable spin-photon entanglement by time to polarisation conversation”

Hosted by: Jörg Schmiedmayer