

## CONDENSED MATTER THEORY SEMINAR

Subject: **Shaken, but not stirred: Periodically driven quantum matter**

Speaker: **Prof. Dr. Michael Knap (TU München)**

Date & time: **Friday, December 8<sup>th</sup>, 2017 at 3.15 p.m.**

Venue: **Seminar room 1.114**

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Title: Periodically driving quantum many-body systems often leads to exotic phenomena that are absent in their undriven counterparts. Examples include, topologically non-trivial band structures that are realized by driving topologically trivial systems and metals that are created by driving fully insulating systems. We will discuss how such exotic phases can be stabilized in generic interacting many-body systems via an intermediate prethermal regime [1]. Furthermore will explore the response of an insulating, many-body localized system and how this robust phase can be melted by periodic driving [2,3]. Understanding these questions, paves the way for realizing novel out-of-equilibrium quantum phases that do not possess an equilibrium analogue.

[1] *Floquet prethermalization and regimes of heating in a periodically driven, interacting quantum system.*

Simon A. Weidinger, **Michael Knap**  
[Sci. Rep. 7, 45382 \(2017\)](#)

[2] *Regimes of heating and dynamical response in driven many-body localized systems.*

Sarang Gopalakrishnan, **Michael Knap**, Eugene Demler  
[Phys. Rev. B 94, 094201 \(2016\)](#)

[3] *Periodically Driving a Many-Body Localized Quantum System.*

Pranjal Bordia, Henrik Lüschen, Ulrich Schneider, **Michael Knap**, Immanuel Bloch  
[Nature Phys. 13, 460 \(2017\)](#)