

# The Journal Club of Condensed Matter Physics



Physikalisches Institut  
Raum 3.014

This Week:



**Speaker:**  
Marvin Lenk  
(AG Kroha)

## Heavy-Fermion Systems and Some Exotic Examples

**Abstract:** In this talk I will discuss the physics of heavy-fermion systems and my current research in this field, including topological systems and exotic effects in this category. Starting from simple concepts in condensed matter theory and quantum mechanics, I will briefly explain the origin of the Kondo effect and how heavy Kondo-bands can form in real-world alloys. In that context, dynamical mean-field theory (DMFT) and the non-crossing approximation (NCA) will be briefly discussed as methods to numerically solve such systems. Finally, I will present results of applying these methods to solve bulk topological Kondo-insulators like SmB<sub>6</sub> and the quadrupolar two-channel Kondo effect in PrV<sub>2</sub>Al<sub>20</sub>.



Web:

<https://sagnikiiser.github.io/CondMat-Bonn>

Wedneseday 2 PM  
19.10.2022