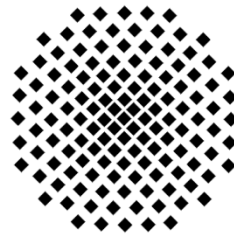


# Stuttgarter Physikalisches Kolloquium

Fachbereich Physik, Universität Stuttgart  
Max-Planck-Institut für Festkörperforschung  
Max-Planck-Institut für Intelligente Systeme

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**Dienstag, 25. Januar 2022**

**16:15 Uhr**

**Online**

**Universität Stuttgart, Pfaffenwaldring 57, 70569 Stuttgart-Vaihingen**

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## The many faces of electrons in quantum materials: multi-talent graphene

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### Abstract

The collective behavior of interacting electrons results in a variety of fascinating phases of matter in modern quantum materials. Understanding the mechanisms behind their formation and characterising their properties are at the heart of condensed matter physics; at the same time, they constitute the necessary basis for the utilisation of quantum materials. I will discuss the many faces (phases) that electrons can show to us at the example of the versatile material graphene. Graphene consists of one layer of carbon atoms, which can be stacked and twisted due to its 2D nature. Depending on how it is manipulated, it enables us to study, for example, the emergence of Dirac fermions, chiral symmetry breaking at quantum phase transitions or unconventional superconductivity in a strongly-correlated environment.