Sonderforschungsbereich 1277

Emergent Relativistic Effects in Condensed Matter -
From Fundamental Aspects to Electronic Functionality

SFB – Colloquium

Speaker: **Dr. Thorsten Deilmann**
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Date: Tuesday, 03 May 2022, 14:15,
H34 and via Zoom

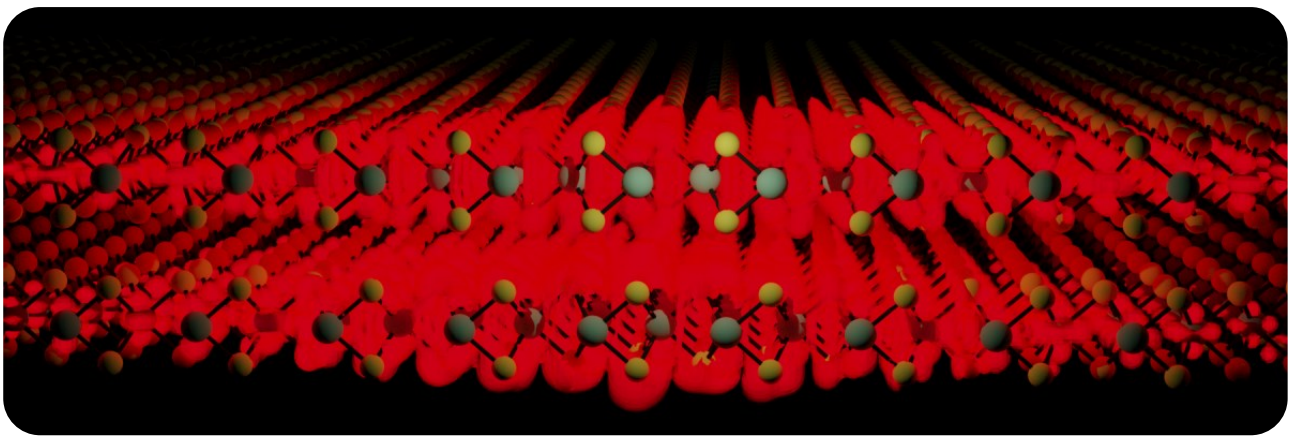
Topic: Interlayer excitons and how to find them

Abstract:

Interlayer (IL) excitons consists of electrons and holes residing in different layers of van der Waals bonded two-dimensional semiconductors. In principle, IL excitons are present in any bilayer. However, their energetic position and oscillator strength may vary significantly depending on the system, e.g. if a heterobilayer with type-II band alignment or a homobilayer is investigated.

In this talk we will discuss some physical properties of IL excitons and trions (i.e. excitons binding an additional electron or hole), compare them with (mostly) two-dimensional excitations, and point out possible ways how such IL excitations can be identified with the help of ab initio calculations including electric and magnetic fields.

Host: Dr. Kaiqiang Lin



Exciton wave function of an interlayer exciton in bilayer MoS_2.