



e-conversion



# Seminarankündigung

**Dienstag, 22. Juni 2021  
17:00 Uhr**

**ONLINE via ZOOM**

<https://tum-conf.zoom.us/j/62946217263>

Passcode: 701872

## **“Spin, charge, and phonon coupling effects in 2D materials”**

The coupling between spin, charge, and lattice degrees of freedom plays an important role in a wide range of fundamental phenomena. 2D material is an emerging platform for studying these coupling effects. In this talk, I will present a couple examples along this direction. I will firstly discuss the observation of antiferromagnetic exciton and multiple exciton phonon bound states in zigzag antiferromagnet NiPS<sub>3</sub>. I will then present the observation of valley phonons, i.e. phonons with momentum vectors pointing to the corners of Brillouin zone, and their interaction with spins in a monolayer semiconductor WSe<sub>2</sub>. We identified the efficient intervalley scattering of quasi particles in both exciton formation and light emission process. These understandings enable us to unravel a series of photoluminescence peaks as valley phonon replicas of neutral and charged dark excitons.

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