WWU MÜNSTER

Institut für Festkörpertheorie

Seminar – Sondertermin

Ort: Seminarraum 718 (Wilhelm-Klemm-Straße 10)

Zeit: **Donnerstag, 21.09.2017, 14 c.t.**

Charged and neutral excitons in transition metal dichalcogenides

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The talk is focused on optical excitations in mono- and bilayer transition metal dichalcogenides (TMDs). In the first part, I will discuss the results of spectroscopic experiments on molybdenum ditelluride ($MoTe_2$), a TMD material with its excitonic transition wavelength around 1000 nm. As this is a highly relevant spectral window, the hitherto little investigated $MoTe_2$ may have considerable application potential, in particular as I show evidence that for this material also the bilayer is still a direct semiconductor.

The second part of the talk will be devoted to time- and polarization resolved studies of tungsten diselenide (WSe_2). I will show the potential of resonant and near-resonant pump-probe spectroscopy in identifying states and scattering channels of TMDs. In particular, the technique allows us to identify a biexciton state with a binding energy less than the trion state, in full agreement with the latest theoretical findings. On the trion side, using the polarization resolution, we can selectively excite two distinct trion states, which display very different polarization dynamics.

Einladende: D. Reiter