



WESTFÄLISCHE  
WILHELMS-UNIVERSITÄT  
MÜNSTER



FACHBEREICH  
PHYSIK

# › Allgemeines Physikalisches Kolloquium

› Donnerstag, 20.10.2016 um 16 Uhr c.t.

*Prof. Dr. Marek Potemski*

Laboratoire National des  
Champs Magnétiques  
Intenses - Grenoble



## Optical properties of semiconducting transition metal dichalcogenides

Atomically-thin layers of semiconducting transition metal dichalcogenides (S-TMDs) represent a new class of two-dimensional systems which are interesting from the viewpoint of their fundamental electronic properties (unusual band structure, unconventional excitons, valley selective circular polarization of optical transitions) and possible optoelectronic applications (light emitting- and photo-diodes).

The summary of our recent works on mono- and multi-layers of  $\text{WSe}_2$ ,  $\text{MoSe}_2$ , and  $\text{WS}_2$ -compounds will be presented. Optical response of these two-dimensional systems will be discussed in dependence of a number of layers, as a function of temperature and in presence of applied magnetic fields. Considerable emphases will be focused on striking effects and unresolved problems which we met in our studies of S-TMD layers, and which will be discussed in the context of the apparent experimental data and related theoretical concepts.