“Modulation of electronic structure in low-dimensional transition-metal dichalcogenides”

Transition metal dichalcogenides (TMC) are widely investigated materials for perspective utilization in nanoelectronic and optoelectronic devices, especially as 2D systems. The prototypical TMC, MoS2, in the forms of mono- and multi-layers is already well-known and its electronic properties are well-understood, with direct band gap characteristic of monolayers, giant spin-orbit coupling in non-centrosymmetric systems, or modulations of these properties using strain or external electric field. However, the plethora of 2D TMC materials is very large and many systems exhibit similarly interesting band structure signatures. Here, we will present some examples from our recent studies on e.g. noble-metal chalcogenides or Group 14-16 layered systems.

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