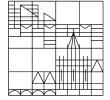
Math.-Nat. Sektion FB Physik





Photophysics of Layered Two-Dimensional Semiconductors

Two-dimensional semiconductors combine easy fabrication and mechanical flexibility with particularly strong light-matter interaction. I will discuss the relaxation dynamics of photoexcited electrons in MoS2 and WS2, with particular emphasis on the formation of excitons and free carriers, as well as the strong optical signatures of many-body effects. Moreover, we observed a particularly strong electroabsorption in MoS2. Contrary to known variants of the Stark effect, the absorption broadening increases linearly with the applied field. The achievable modulation depths bear the scope for extremely compact energy-efficient electroabsorption modulators for integrated photonics.

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