



e-conversion



Seminarankündigung

**Dienstag, 8. Dezember 2020
17:00 Uhr**

ONLINE via ZOOM

“Exciton quasi-condensation in atomic- double-layer exciton insulator”

Exciton insulator, a compressible state for excitons but an incompressible state for charges, was first discussed by Nevill Mott in relation to the metal-insulator transition problem. It is expected to emerge in a material when its energy gap for charge excitations becomes smaller than the exciton binding energy, beyond which an exciton fluid is spontaneously formed and can Bose-condense at low temperatures. Although the concept is known to the physics community for nearly seventy years, the thermodynamic evidence of an exciton insulator remains elusive. In this talk, I will discuss direct thermodynamic evidence of an equilibrium exciton insulator in atomic double layers of transition metal dichalcogenide (TMD) semiconductors. I will also discuss the phase diagram of the strongly interacting exciton fluid and thermodynamic evidence of 2D quasi-condensation of excitons. I will end with a brief outlook on possible high-temperature exciton superfluidity in future multi-exciton-terminal devices.

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