Max-Planck-Institut für Struktur und Dynamik der Materie

Max Planck Institute for the Structure and Dynamics of Matter

Wednesday, May 22nd 2019 - 10:00
CFEL Seminar room IV (Bldg. 99)

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Unconventional Charge Density Wave Transitions

Abstract: Historically charge density waves have been associated with the notions of Fermi surface nesting and, at the transition temperature, a soft phonon mode. In this talk, I will present two cases that defy this common theme. First, I will show that TiSe2 undergoes a transition due to exciton condensation, which exhibits a soft mode of a different, electronic variety. Second, when driving the system away from equilibrium, the phase transition is mediated by topological defects. These defects allow for the formation of a charge density wave that does not occur in equilibrium. This light-induced charge density wave shows some unique properties that suggest that it is not just a trivial extension of an equilibrium one.

Host: MPSD

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