

PHYSICAL COLLOQUIUM

INVITATION

Monday, 02.11.2020, 4.15 p.m.,

speaks

Dr. Alexey Chernikov,

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About

“Coulomb interactions and exciton propagation in monolayer semiconductors”

Transport of optical excitations in semiconducting solids plays a central role both from fundamental and technological perspectives. In systems with strong Coulomb interaction the propagation of optically injected carriers is dominated by excitons that can affect the energy landscape and the interactions with vibrational modes, with an overall strong impact on the mobility. Here, I will present recent studies of exciton diffusion in van der Waals semiconductors and hybrid two-dimensional materials, monitored via time-resolved optical microscopy. I will discuss linear and non-linear phenomena arising from efficient interactions across characteristic temperature regimes. Particular focus will be placed on the impact of interactions with vibrational modes and the influence of local fluctuations in the dielectric environment. Finally, I will discuss the interplay between free carriers and excitons and potential impact of quantum interference effects in exciton transport.

All interested persons are cordially invited.

Sgd. Prof. Dr. Christian Schneider