

Speaker: Sergey Andreev

Title: Controllable pairing of electromagnetic bosons in 2D semiconductors

Place: Seminar room (915)

Abstract:

Exciton-polaritons in 2D semiconductors are electromagnetic bosons characterized by massive dispersion, polarization (spin) and pairwise interactions produced by the Coulomb forces between the constituent electrons and holes. Two bosons with opposite spins may form a bound state (biexciton). I will present my theoretical research on unconventional mechanisms of boson pairing which may enable efficient generation of strongly correlated photons and pave the way toward quantum chemistry of light. Quantum collective states of the paired bosons will also be discussed. The talk will be intended for non-experts familiar with just the very basic concepts of quantum optics and solid state physics.

).