



Seminar Announcement

Optical orientation of trions in charge tunable InAs/GaAs quantum dots

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We report on optical orientation of multi-charged excitons in InAs/GaAs n-doped quantum dot ensemble and in individual charge tunable self-assembled quantum dots. Results on QD ensemble showed that the resident electrons can be written and read using non resonant circularly polarized pumping. An electronic spin relaxation time of 15 ns is deduced from these measurements. Quasi resonant excitation on charge tunable single dots showed a surprising evolution of the trion X- polarization from 0 to 100% when the number of stable electrons varies from 0 to 2 in the dot. We discuss this behaviour as the efficient quenching of electron hole exchange interaction in anisotropic QD due to the trion formation. This result evidences a long hole spin relaxation time, confirmed by time-resolved photoluminescence measurements carried out on a charge tunable QD ensemble.
