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Guest Lectures Doctoral School “CoQuS”

“ Quantum Physics in the Solid State”

G. Bastard, ENS Paris

LV.Nr.: 387.042

Semiconductor nano structures are the future building blocks for electronic and photonic devices. For these developments a detailed understanding of quantized energy states, transport, energy relaxation, interaction with phonons, interaction with photons is required. The dependence of the relaxation on the dimensionality is important for the discussion of quantum information processing schemes in nanostructures

Lecture 1 Tuesday 12.1. 14:00-16:00

Energy relaxation in quantum dots : the anharmonic decay of polarons at work.

Lecture 2 Thursday 14.1. 14:00-16:00

Bloch oscillator. Physics. Early successes and recent modeling of excitation spectrum.

Lecture 3 Friday 22.1. 14:00-16:00

Dimensionality dependence of the energy relaxation in quantum heterostructures

Lecture 4+5 Tuesday 26.1. 14.00-16:00

QW electrons in a magnetic field. Assisted tunneling, interface defects, alloy scattering, magneto – polarons.

Lecture 6 Thursday 28.1. 14:00-16:00

A touch of graphene : dispersion relations, density of states, cyclotron resonance.

Location: Seminarraum Photonik-Institut CBEG02