Halbleiter-Nanophotonik

SFB 787

Einladung

Es spricht: **Prof. Dr. José M. Calleja**
Dpto. de Fisica de Materiales, Universidad Autonoma de Madrid

Zeit: **Dienstag, 10. Januar 2016, 10:00 Uhr**

Ort: **Technische Universität Berlin**
Institut für Festkörperphysik
Hardenbergstraße 36, 10623 Berlin
Raum EW 561

Thema: **„InGaN single photon emitters in nanowires: Properties and dynamic control"**

Abstract:

InGaN quantum dots embedded in GaN nanowires display narrow emission lines in the blue-UV spectral region, which behave as single photon emitters (SPE). They occur both for polar and non polar orientations of the GaN nanowires. The samples are grown by Plasma-assisted Molecular Beam Epitaxy (PAMBE) and colloidal lithography, leading to quasi-periodic arrays of nanowires. Detailed morphologic studies (STEM, HRTEM and cathodoluminescence) indicate that the quantum dots are originated by random composition fluctuations. The emitted single photons have almost full linear polarization, and originate from exciton recombination, whose decay rates vary from 1.0 ns (polar orientation) to 0.5 ns (non-polar orientation). Surface acoustic waves are used to modulate the SPE properties in the GHz range. Apart from altering the emission energy by 1 to 2 meV , SAW also modify the QD electronic states and their population. This is shown by the modulation of the biexciton binding energy and the linear polarization degree of the photons. The present results can help to develop SPE arrays operating in the blue-UV spectral region at GHz frequencies, with some degree of control on their basic properties.

Gäste sind herzlich willkommen!
Prof. Dr. A. Hoffmann