Halbleiter-Nanophotonik

SFB 787

Einladung

Es spricht: **Saulius Marcinkevičius**

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Zeit: **Mittwoch, 24. Juni 2015, 10:15Uhr**

Ort: **Technische Universität Berlin**
Institut für Festkörperphysik
Hardenbergstraße 36, 10623 Berlin
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Thema: **"Scanning near-field optical microscopy and its application for studies of GaN-based films, quantum wells and LEDs"**

Abstract:
A common feature for ternary nitride semiconductors is band potential fluctuations, related to spatial variations of alloy composition, strain, extended defects, and cation clustering. Such fluctuations may have different consequences on nitride device performance. In some cases, localization separates carriers from dislocations reducing the rate of the nonradiative recombination. In other materials, localization occurs at domain boundaries with a larger defect concentration. In LEDs, the presence of lower potential sites may lead to current crowding and premature device degradation. Since the band potential fluctuations often occur on the nanoscale, optical techniques with a high spatial resolution are desirable. Scanning near-field optical microscopy (SNOM) is one of such experimental methods.

In the seminar, a brief introduction into the SNOM principle and instrumentation, as well as a few spectacular examples will be given. Then, near-field photo- and electroluminescence investigations at KTH on AlGaN epitaxial layers, AlGaN quantum well LEDs, and nonpolar and semipolar InGaN/GaN quantum wells will be presented. Near-field and time-resolved measurements of AlInN/GaN heterostructures will be discussed in relation to the large Stokes shift observed in AlInN.

Gäste sind herzlich willkommen!

Prof. Dr. M. Kneissl