



# Seminarankündigung

**Dienstag, 18. Juni 2013  
13:00 Uhr**

**WSI, Seminarraum S 101**

## **“Correlated imaging of low dimensional materials”**

Microscopy has played a central role in the advancement of nanoscience and nanotechnology by enabling the direct visualization of nanoscale structure, and by extension predictive models of novel physical behaviors. Correlated imaging of nanoscale structure *and* properties is an important frontier that can provide a rational basis for engineering new materials and devices. I will describe our approach to correlated imaging with a focus on semiconductor nanowires. Nanocrystal growth modes such as the vapor-liquid-solid process provide the ability to tailor nanoscale structure and composition in three dimensions, creating new opportunities in a range of applications including light harvesting and solid state lighting. In this context, we have explored a number of important processing-structure-property relationships using atom probe tomography, scanning transmission electron microscopy, Raman microspectroscopy and scanning photocurrent microscopy. In addition, electromagnetic fields are visualized using finite difference time domain simulations. From these studies, we aim to develop a comprehensive understanding of the influence of geometry, size, defects, dopants, and interfaces on carrier generation, recombination, and transport in nanostructured materials. This quantitative approach to characterization of model systems aims to identify applications that can truly benefit from the adoption of unconventional nanostructured materials.

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