

## Institutskolloquium

Am Mittwoch, den **21.10 2009, 16.00 Uhr** spricht:

**Dr. Weng W. Chow**

**Sandia National Laboratories, Albuquerque, NM, USA**

über

**„Will quantum dots be the active media of choice for future semiconductor lasers?“**

Abstract:

Semiconductor lasers play key roles in optoelectronic applications that affect practically every aspect of our daily life. Presently, an important and much debated question is the direction of development for semiconductor laser science and technology to enable the next generation of optoelectronic devices. This talk attempts a prediction by examining intrinsic behavior and underlying physics associated with the progression of quantum confinement from quantum well to quantum dot. First principle treatments for various aspects of carrier interactions in reduced dimensions were incorporated into a laser theory to allow rigorous calculations necessary for consistent comparisons of quantum dot and quantum well structures, as well for projections of best achievable performance. Using an example involving GaAs-based lasers for telecommunication, the talk will address issues involving necessary growth uniformity improvement and the balance between gain saturation and threshold current for quantum-dot lasers to outperform quantum-well ones.

**Ort: Max-Born-Saal,  
MBI, Max-Born-Str. 2 a**

Interessenten und Gäste sind herzlich eingeladen.

Prof. Dr. T. Elsässer