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The Nanorod Approach: NanoLEDs and more... Potential Benefits and Perspectives of 3D Nano- structures

Even though semiconductor technology has enabled substantial progress over the last 50 years, it is still mostly based on a planar, 2-dimensional approach. The technological access to the surface of a complete wafer in a parallel way leads to an almost complete control on the devices under fabrication. Meanwhile, the further reduction of lateral dimensions has led to substantial problems in local and global interconnect in integrated circuits. Optical interconnects would solve this problem, but the combination of silicon with light emitting devices is difficult.

A completely 3-dimensional approach to semiconductor technology would give us much more freedom in the design of future devices and systems. However, 3D semiconductor devices are challenging. Novel fabrication mechanisms like self-organization have to be employed, and semiconductor processing beyond the planar approach have to be developed.

Semiconductor nanorods are a first step towards "real 3D". The status and potential of semiconductor nanorods will be discussed, from GaN based nanorods for photonic and optoelectronic applications to silicon nanorods for nano-particle detection and nano-thermoelectrics.

**Donnerstag, 16. Februar 2012, 16:00 Uhr
Bismarckstraße 81, Raum BA 143**