



LNQE-Kolloquium

Mittwoch, 27.05.09 um 17:30 - 18:30 Uhr

+ anschließendes Beisammensein

Hörsaal im LfI (Schneiderberg 32, 30167 Hannover, Deutschland)

Wide Band Gap Semiconductor Nanorods: Status and Potential Applications

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Semiconductor nanorods with a high aspect ratio are interesting candidates for optoelectronic devices. Defects originating from the semiconductor-substrate-interface are annihilated in the bottom part of the nanorod, resulting in material which is practically free of extended defects in the upper part of the nanorod. The strain situation in nanorods is very different from thin film structures, since the 3 dimensions are available for strain relaxation. The nanorods with dimensions in the range of some 100 nm diameter are a natural waveguide for the optical mode. Core-shell strategies could lead to a drastic increase in the active area of the nanorod ensembles in comparison to thin film structures.

In order to exploit all these unique properties of nanorod systems, a good control on size, shape, composition and electrical properties has to be established. Also, the role of one additional "defect" occurring in nanorods, namely the huge nanorod surface, has to be explored.

An overview on the properties of ZnO and GaN based nanorod systems will be given, with a special emphasize on the application of nanorods for optoelectronics.