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S E M I N A R
aus
Halbleiterphysik und Nanotechnologie

Mo, 25.7.2016, 14:00 Uhr, Hörsaal für Physik

"Self-assembly and structural transformations of semiconductor nano-materials - insights from computer simulation"

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The properties of crystalline materials on all length scales depend sensitively on the symmetry of the crystal lattice. Manipulating the crystal lattice of a bulk material, however, is often challenging because of strong thermodynamic driving forces and large kinetic barriers. On the nanoscale, phase diagrams and kinetic pathways of structural transformations can be tuned by controlling size, shape, and surface chemistry of nanoparticle building blocks. Our group uses computer simulations and statistical mechanics to reveal the microscopic pathways of structural transformations in nano-materials. In this talk I will discuss recent work aimed at understanding transformations in two system: core-shell semiconductor nanocrystals under pressure and self-assembled superlattices of nanocrystals covered with organic ligands.