Continuum modeling of epitaxial growth - from density functional theory to geometric evolution equations

by Prof. Axel Voigt

Date: 28th February 2008 (Thursday)
Time: 12:00pm to 1:00pm
Venue: Block EA-02-11 (Seminar Room)

Abstract

Numerical modeling of thin film growth can describe the self-assembly of nanostructures. Various approaches are possible ranging from atomistic to continuum descriptions. We will discuss a hierarchy of models starting from classical density functional theory, introducing step flow models and geometric evolution laws for a coarse grained continuous surface. For all models we will use advanced finite element techniques. The models are applied to describe facetting of nanocrystals, mound formation and spiral growth in MBE as well as coarsening of faceted surfaces in LPE.

Prof. Axel Voigt Speaker

1997 Diploma in mathematics at Technical University Munich, Germany
2001 PhD in mathematics at Technical University Munich, Germany „Numerical simulation of industrial crystal growth"
2001-2007 Head of research group „Crystal Growth“ at research center Caesar Bonn, Germany
2004 Habilitation in mathematics at Technical University Munich, Germany „Modeling of epitaxial growth"
2004-2005 Lecturer at Technical University Munich, Germany
2005-2007 Lecturer at University Bonn, Germany
2007- Prof. at Technical University Dresden, Germany Chair for Scientific Computing and Mathematical Modeling
2007 Visiting Prof. at Helsinki University of Technology
2008 Visiting Prof. at University of California, Irvine

Dr Xue Jun Min Host

All are Welcome!