

NUS Nanoscience & Nanotechnology Initiative (NUSNNI)

'Nanotechnology at NTNU: Overview & Examples from Oxide Electronics & Bio-nanotechnology

Speakers: Bjørn Torger Stokke and Thomas Tybell, Norwegian University of Science and Technology, NTNU, Norway
Venue: EA#06-03
Date: 10 February 2006 (Friday)
Time: 11.30am to 12.30pm

Abstract:

In order to address issues relevant to modern materials science and device technology, Norwegian University of Science and Technology, NTNU, is in the process of establishing *NTNU NanoLab*,

The goal of *NTNU NanoLab* is to enable and coordinate nanotechnology research and education at NTNU, and the aim is to construct a research environment enabling cross-disciplinary research to explore the possibilities offered by nanotechnology.

As suggested by a rector appointed international committee, *NTNU NanoLab* will focus on four prioritised areas:

- Nanoelectronics, nanophotonics and nanomagnetics
- Nanostructured materials
- Bionanotechnology
- Nanotechnology for energy and the environment

This presentation will give an overview of activities at NTNU, including the ongoing work of establishing appropriate infrastructure facility and some in-depth information about our activities within bionanotechnology and nanoscale oxide electronics. The new facility will be cross disciplinary with active participation from scientists in the fields of physics, chemistry, biology including biophysics and medical research, materials science and engineering, and electrical engineering. We will also briefly present a new 5-year integrated master program in nanotechnology, starting the fall of 2006

Biography:

Bjørn Torger Stokke, professor of physics, biophysics and medical technology at the Department of Physics at NTNU. Stokke has been the vice-dean (academic) at the Faculty of Natural Sciences and Technology, NTNU, the project director of the Strategic Research Priority Materials at NTNU. Stokke is currently the chairman of the board of NTNU Nanolab, and the chairman of the board of the NANOMAT research program of the Norwegian Research Council. Stokke is the Dean of Engineering Studies (from Jan 2006 present) for all engineering (5 year integrated) master programs at NTNU. Stokke's research interest covers various facets of structure-function relationships in biopolymers, e.g. polycationic-induced condensation of DNA, effects of chain stiffness on polyelectrolyte condensation pathway and morphology, and stability of polyelectrolyte complexes in the presence of challenging compounds. Stokke has a PhD in physics (biophysics) from NTH (currently integrated in NTNU), for which he was awarded the Exxon Research Award as the most outstanding PhD thesis in basic science in 1985. He is an elected member of the Norwegian Academy of Technological Sciences, the Royal Norwegian Society of Sciences and Letters and the Polymer Networks Group.

Thomas Tybell, professor of micro and nanotechnology at Dept. of Electronics and Telecom., at NTNU, is director of NTNU NanoLab, the University initiative within nanotechnology. The emphasis of his research has been on epitaxial growth of complex oxides and nanoscale control of the ferroelectric polarization, and how this can be used to study fundamental physical properties of ferroelectrics and epitaxial heterostructures, creation of novel electronic components, for example field effect devices and how reduced dimensions affect the properties of perovskite ferroelectrics. Tybell has a PhD in physics from University of Geneva, and was in 2004 awarded an Outstanding Young Investigator Fellowship from the Research Council of Norway. He is an elected member of the Norwegian Academy of Technological Sciences.

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