

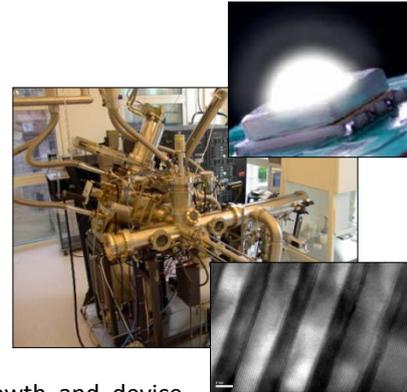
# PhD student position in Optoelectronics – Ultraviolet Light Emitting Diodes

Chalmers University of Technology, Göteborg, Sweden

Application deadline: February 29, 2012

## The laboratory

The Photonics Laboratory at the Department of Microtechnology and Nanoscience (MC2), with about 25 members, conducts application oriented research in the areas of optical materials, optoelectronics and fibre optical communication. Research in optoelectronics started at Chalmers in the early 1980's. Today we master everything from device design and epitaxial growth to device fabrication and testing. We have access to one of the best university labs in the world for device fabrication and we have well-equipped labs for epitaxial growth and device measurements. Recently, a large effort on wide-band gap materials based on nitrides (GaN, AlN and AlGaN) and oxides (ZnO) and related device technologies was launched. Such materials enable, for instance, light emitters at short wavelengths (ultraviolet-green-blue).



## The project

To further strengthen our efforts on *wide-band gap nitrides and related devices*, we will now expand our team with a new PhD student working on *ultraviolet light emitting diodes* (UV-LEDs). The UV-LEDs are intended for white light LEDs where the UV-LED is coated with a multi-chromatic phosphor for conversion of UV radiation to white light emission. Such white light LEDs enable excellent colour rendering, which is a requirement for wide-spread use in general illumination. White light LEDs are expected to greatly contribute to global energy savings and reductions of greenhouse gas emissions as they replace incandescent and fluorescent lamps.

In the initial phase of the project we will develop the techniques needed for the *epitaxial growth* of high quality AlGaN-based UV-LED structures. In the second phase, we will *fabricate and evaluate the performance of UV-LEDs*. Major emphasis will be put on increasing the efficiency of UV-LEDs to enable highly efficient white light LEDs.

The project is funded by the Swedish Energy Agency.

## Job description

We seek a PhD student to work in a team of senior researchers and other PhD students with complementary skills and tasks. After being trained in epitaxial growth by molecular beam epitaxy, materials characterization and device fabrication, the PhD student will actively participate in the epitaxial growth, fabrication and evaluation of UV-LEDs. A limited amount of effort in UV-LED design and modelling is also expected.

## Qualifications

Master of Science degree in Engineering Physics, Applied Physics, Electrical Engineering or equivalent. Solid knowledge in the areas of semiconductors and optoelectronics is required. Any experience from epitaxial growth, materials characterization, device fabrication in a clean room environment and/or device characterization is a merit. A good command of English is required.

## For more information

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