April 26, 2013

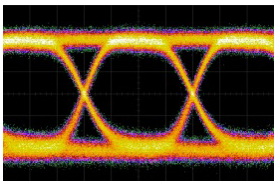
# PhD Student position in Optoelectronics – Vertical Cavity Surface Emitting Lasers

**Chalmers University of Technology, Göteborg, Sweden**

Application deadline: June 7, 2013

### The laboratory

The Photonics Laboratory at the Department of Microtechnology and Nanoscience (MC2), with about 30 members, conducts application oriented research in optoelectronics and fibre optics, as well as more fundamental research on new photonic materials. Research in optoelectronics, with an emphasis on semiconductor lasers, started at Chalmers in the early 1980's. Today we master everything from laser design and fabrication to laser characterization and system evaluation. We are among the leaders for the development of vertical cavity surface emitting lasers (VCSELs), which is a key component in short reach optical communication links and networks as well as various optical sensing systems. We participate in European projects and work closely with academic and industrial partners world-wide. To further strengthen our efforts we will now expand our team with a new PhD student to work primarily on VCSELs and related integration technologies for optical interconnects.



### The project

The VCSEL is being developed towards higher speed and efficiency to meet requirements of increased capacity and reduced power consumption in optical interconnect networks. Of increasing importance is also a higher degree of integration to enable e.g. wavelength tunable VCSELs and multi-wavelength VCSEL arrays for wavelength division multiplexed interconnects and dense VCSEL arrays for space division multiplexed interconnects. The project deals to a large extent with such integration technologies using various techniques and platforms such as nanophotonics and silicon-photonics integration.

### Job description

We seek a PhD student to work in a team of senior researchers, postdocs and other PhD students with complementary skills and tasks. After being trained in device fabrication using state-of-the-art equipment in a cleanroom environment, the PhD student will actively participate in the research and development of new VCSEL technologies and integration schemes. The work is mainly experimental with a focus on laser fabrication and evaluation at the device level, but also system level experiments. In addition, a limited amount of efforts in laser design and modelling is expected. Much of the work will be conducted in close collaboration with external partners. It is also expected that the PhD student spends about 10% of his/her time on departmental work, mostly as a teaching assistant.

### Qualifications

By the starting date, the applicant should have a 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 device design, device fabrication in a cleanroom environment, and/or device characterization is a merit. A good command of English is required.

### For questions, please contact

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### For electronic submission of your application

Go to: www.chalmers.se and click on Vacancies (at the bottom of the page)