CHALMERS

Open positions

PhD Students and Postdocs

Chalmers University of Technology is launching the project **Optical Interconnects for Harsh Computing Environments** – **HOT OPTICS**, a 5-year project funded by the Swedish Foundation for Strategic Research.

Project scope

Interconnects limit the capacity of high-performance computing systems, whether being a large-scale datacenter or a single high-performance signal processing unit. Electrical interconnects are therefore replaced by optical interconnects (OIs) offering higher interconnect speed and higher energy efficiency. While current OIs operate under rather controlled environmental conditions, use cases where the environment is more demanding in terms of peak-temperature and temperature variations are now appearing. This includes e.g. co-package optics (optical transceivers close to heat generating ASICs), automotive optical networking, and optical networking in advanced radar systems. The project aims at developing OIs using vertical-cavity surface-emitting lasers (VCSELs) as the light source for these more harsh environments. The project is multidisciplinary and involves four research groups from three departments at Chalmers to capture all photonic device, electronic IC, and system technologies of relevance for holistic solutions:

- High-speed VCSELs with unprecedented high-temperature performance and tolerance to large temperature variations
- Highly functional, high-speed electronic driver and receiver ICs for an extended temperature range
- Channel monitoring and adaptivity in terms of modulation format and signal parameters to maximize OI throughout over a wide temperature range

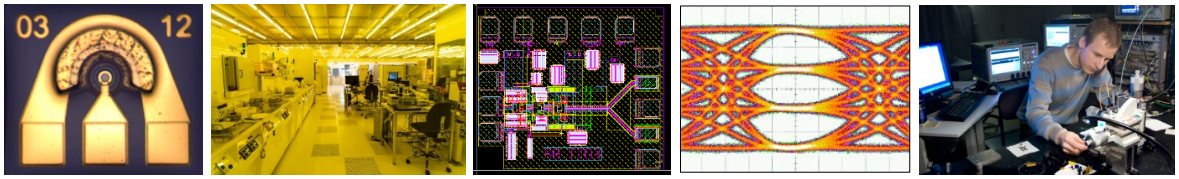
The project will interact with Swedish industry: Nvidia (co-packed optics), Volvo Cars (automotive networking), and Saab Surveillance (radar networking), all based in Gothenburg.

Positions

The following positions are open for recruitment during the spring of 2021:

Position	Project	Project leader	Reference number
PhD student	VCSEL design, fabrication and testing	Prof. Anders Larsson anders.larsson@chalmers.se	20200560
PhD student	Electronic IC design and testing, transmitter and receiver integration	Assoc. Prof. Lars Svensson lars.svensson@chalmers.se	20200563
PhD student	Dynamic OIs by channel monitoring and adaptivity	Prof. Peter Andrekson peter.andrekson@chalmers.se	20200562
Postdoc	Electronic IC design and testing, transmitter and receiver integration	Assoc. Prof. Lars Svensson lars.svensson@chalmers.se	20200564
Postdoc	Machine learning for dynamic OI optimization	Prof. Henk Wymeersch henkw@chalmers.se	20200544

For more information and to apply for a position, go to:
https://www.chalmers.se/en/about-chalmers/Working-at-Chalmers/Vacancies/Pages/default.aspx
and use the reference number.



HOT OPTICS