



FOR IMMEDIATE RELEASE

NL Nanosemiconductor announces Broad Band Lasers based on Quantum Dot Technology

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NL Nanosemiconductor has announced a breakthrough achievement in the realization of a laser chip which will enable cost-effective WDM solutions for optical communications using Silicon Photonic technology including Silicon-based arrayed waveguides (AWGs) and light modulators. A single mode CW laser with spectral width of >20 nm and spectral wavelength between 1200 and 1320nm is currently being put into production at NL Nanosemiconductor's facilities in Dortmund/Germany.

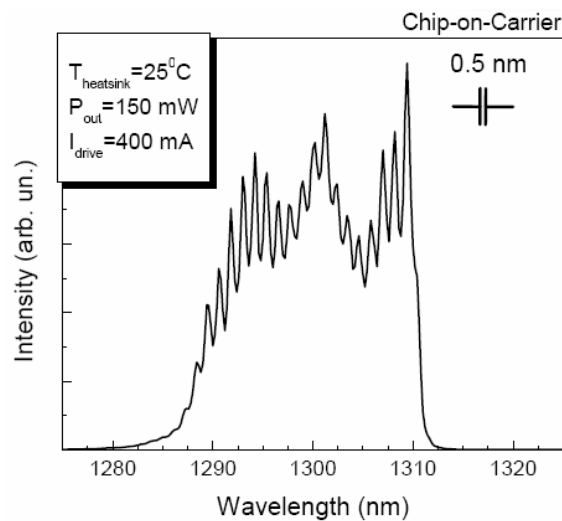


Figure: Example of lasing spectrum of broad-band QD laser

Dr. Alexey Kovsh, COO at NL Nanosemiconductor explained the achievement, saying “The uniqueness of our laser is the width (25 nm) and uniform shape (less than 3dB modulation at 0.5 nm resolution) of the spectrum in the lasing regime. Of further importance is the high reproducibility of the lasing spectrum shape. We managed to develop a way to get a laser to lase with a very wide emission spectrum, which is of course opposite to the fundamental nature of lasing – at a very narrow spectrum.”

Emerging applications for light sources with a broad spectrum include Optical Coherence Tomography imaging systems, which typically use so-called Superluminescence LEDs (SLED) or Amplified Spontaneous Emission (ASE) sources.

Another high volume potential of such devices may come with the introduction of Silicon-based modulation technology in which many parallel channels are pumped by one light source. The main drawback of SLEDs include limited power and low efficiency. Having a laser which delivers light with high power density over wide range of wavelength is clearly beneficial for future WDM Silicon-photonics based solutions, since the output can be spectrally split with sufficient power for highly efficient networks using a single source laser. The development of quantum dot broad-band lasers has been focused mainly on this application. However, work is also being done to extend the lasing spectrum above 40 nm and looking for shorter term market potential, which may include medical and military applications.

Various innovative laser products using quantum dot technology have already been introduced and an optical timing source for high-end processors and communications applications is currently under development. "Such a Broad-Band Laser is the latest of our innovations and we anticipate interest in its use for wide range of applications besides the obvious WDM networks." commented Juergen Kurb, CEO of the company. Further development is focused on extending this technology by realizing a so called comb-laser, a laser chip which provides lasing simultaneously on different selected wavelengths with uniform intensity distribution to have even higher power density per one channel.

About NL Nanosemiconductor (www.nanosemiconductor.com)

Originally spun-out of the Ioffe Physico-Technical Institute in St. Petersburg, Russia, NL Nanosemiconductor offers innovative mode-locked and high power laser semiconductor chips and modules at the specific wavelength range of 1.1 – 1.3 microns for the medical, industrial, communications and computer markets. Its quantum dot technology and proprietary design concepts enable tangible improvements in cost, performance, and quality in compound semiconductor devices used in opto-electronics.

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