**Energy efficient, large bit-rate VCSELs for Wavelength Division Multiplexing**

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**Abstract:**

The energy required to transmit information as encoded optical and electrical data bits within and between electronic and photonic integrated circuits, within and between computer servers, within and between data centers, and ultimately across the earth from one point to another one clearly must be minimized. This energy spans from typically tens of picojoules-per-bit to well over tens of millijoules-per-bit for the intercontinental distances. So, with a large number and high density of data links, large data centers already form part of the dominant energy consumers in the world-wide power grid. VCSEL based optical interconnects are the key for an enormous reduction of energy consumption in concert with an increase of the data rate per fiber in those data centers. A reduction of power consumption of VCSELs based on photon lifetime tuning combined with wavelength division multiplexing is presented here leading to VCSELs for +200 Gbit/s single multimode data transmission.

**Biography:**   
Gunter Larisch is Associate Professor at the “Bimberg Chinese-German Center for Green Photonics” at Chinese Academy of Sciences and head of its High Frequency Lab at Changchun Institute of Optics Fine Mechanics and Physics, as well as guest scientist at Technische Universität Berlin, Germany. He received the Diploma (M.Ss. equivalent) degree in applied physics, and a Ph.D. in science from the Technische Universität Berlin, Germany. He continued working as Postdoctoral Researcher at Technische Universität Berlin, Germany until June 2018.