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Vertical-Cavity Surface-Emitting Lasers XIV

**James K. Guenter
Kent D. Choquette**
Editors

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Introduction

On 27–28 January 2010 the Vertical-Cavity Surface Emitting-Lasers XIV conference was held for the first time in San Francisco as part of the SPIE Photonics West symposium. This volume contains the manuscripts written by the conference presenters who discussed their research and development activities to an audience that consistently over-filled the room during six sessions. It is clear from the topics and attendance that applications of VCSELs have robust markets which continue to grow and that VCSEL development continues to mature. In fact, the majority of reports focus on new applications of VCSELs.

Data communication applications were reviewed by several companies. The 10 Gb/s market for VCSELs seems to be well established, and efforts to extend to 14 and eventually 25 Gb/s devices were discussed. Reducing the operation power for VCSEL-based optical links has become important. In addition, new applications in sensing, high power, environmental monitoring were reported. Perhaps most noteworthy are several companies who are exploring and exploiting the high brightness and high power performance that now can be achieved using VCSEL arrays. Not so long ago such applications would have been considered not possible using a microcavity laser. The development of the VCSEL device structure and emission wavelength continues, with reports on high contrast grating VCSELs, photonic crystal VCSELs, and low noise lasers.

The papers presented at the 2010 Vertical-Cavity Surface Emitting-Lasers XIV conference included in these proceedings show the advancement of VCSEL optoelectronic technology.

James K. Guenter
Kent D. Choquette

