

2nd International Conference and Exhibition on **Lasers, Optics & Photonics**

September 08-10, 2014 Hilton Philadelphia Airport, USA

Near-infrared wafer-fused vertical-cavity surface-emitting lasers for trace gas detection

Svatopluk Civiš

Academy of the Sciences, Czech Republic

We demonstrate the potential of low-cost and low-power-consumption wafer-fused vertical-cavity surface-emitting lasers (VCSELs) operating in the 1310 nm wavelength range, which were originally developed for telecommunication applications involving high-volume trace gas sensing. Tunable diode laser absorption spectroscopy experiments performed with these VCSELs on methane, ammonia, and hydrogen fluoride gases are presented and discussed. In particular, detection of HF using the absorption line in the vicinity of 7568 cm^{-1} with a detection limit at atmospheric pressure at the level of several ppm is demonstrated for the first time.

Biography

Svatopluk Civiš completed his PhD at the age of 28 years in 1983 from Charles University, Prague and Postdoctoral studies from Giessen University and National Research Council Canada. He is the Head of Department Spectroscopy at J. Heyrovsky Institute of Physical Chemistry, Prague, Czech Republic. He has published more than 140 papers in reputed journals.

civis@jh-inst.cas.cz