Hybrid Photonic Crystal lasers for Refractive index Sensing

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Abstract

We present results on a novel design of high Q-factor Silicon Nitride (SiN) 1D Photonic Crystal (PhC) cavities side-coupled to curved waveguides, operating with both silica and air cladding, which we then employ in a Hybrid External Cavity Laser (HECL) configuration. We demonstrate the operation of these lasers as novel transducers for refractive index changes that are induced by analyte specific absorption of infrared radiation by the target analytes present in gas or liquid phase.