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SILICON PHOTONICS: LASERS AND AMPLIFIERS

Roel Baets (1,2)

(1) Photonics Research Group, INTEC-department, Ghent University – IMEC

(2) Center for Nano- and Biophotonics (NB-Photonics), Ghent University

Abstract: In this presentation research on light emission and amplification in the context of a silicon photonics platform will be discussed. Two distinct approaches will be covered. The first is the "hybrid silicon laser". It relies on the bonding of thin InP-InGaAsP epi-layers on patterned silicon photonics wafers and subsequent processing into electrically driven microlasers. A range of different hybrid lasers for different applications will be discussed. The second approach is based on four-wave-mixing in silicon and allows to generate new optical frequencies on the basis of optical pumping. Progress in this area both at telecom and longer wavelengths will be discussed, both for crystalline and amorphous silicon-on-insulator.

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