Centre de Nanosciences et de Nanotechnologies

Séminaire

Hans Sigg

PSI (Suisse)

Vendredi 18 janvier 2019

11h00

Amphitheatre du C2N

"Lasing in strained Ge microbridges"

Lasing in strained Ge microbridges

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Among the many favorable properties, Ge excels as CMOS-compatible system with bandstructure tunable by strain and/or alloying with Sn to become direct, such as the standard group III-V reference semiconductor laser systems. While GeSn lasing has been demonstrated 4 years ago [1], and is nowadays routinely used in many places, lasing of strained Ge has only been reported twice [2, 3], showing multimode low intensity emission.

Here, we report lasing both in single and multimode regimes, with very high efficiency and up to 100 K, under sub ns pulsed optical excitation in uniaxially loaded tensile strained Ge microbridges. We will give a full proof of unambiguous lasing, serving as benchmark for previous and future demonstration of group IV lasing.

[1] S. Wirths et al. Nature Photonics (2015).

[2] A. Elbaz et al. APL Photonics (2018).

[3] B. Shuyu et al., Nat. Comm. (2017).