



Soutenance de thèse

Jeudi 24 septembre 2020

14h00

Centre de Nanosciences et de Nanotechnologies
10 boulevard Thomas Gobert
91120 Palaiseau
Amphithéâtre

Lien public :

<https://eu.bbcollab.com/collab/ui/session/guest/43da1ff0ea164d58b4ff84fbbc8a79d4>

Le nombre de personnes pouvant accéder à l'amphithéâtre étant limité, veuillez contacter farsane.tabataba-vakili@u-psud.fr si vous souhaitez assister à la thèse en présentiel.

Farsane TABATABA -VAKILI

“III-nitrures on silicon: a platform for integrated photonics from the ultraviolet to the near-infrared ”

Jury members :

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Abstract :

III-nitride semiconductors (AlN, GaN, InN and their alloys) have become an integral part of our daily lives as they are used in white, blue, green, and ultraviolet light emitting diodes, as well as laser diodes, and power and high frequency electronics. This material is highly versatile due to its tuneable large direct band gap from the ultraviolet to the visible. III-nitrides give access to a very wide range of electronic, optoelectronic, and photonic applications. In photonics, a promising field relies on the III-nitride on silicon platform for next generation photonic integrated circuits due to its large transparency window from the ultraviolet to the near-infrared and the possibility of monolithic integration of active emitters such as quantum wells or quantum dots.

In this thesis, we study microdisk resonators and lasers and their integration into active photonic circuits in the ultraviolet and visible spectral range. We demonstrate low threshold pulsed optically pumped lasing in microdisks, the first active microlaser photonic circuits in the blue and ultraviolet spectral ranges, as well as critical coupling in the blue spectral range. We also propose a scheme for electrical injection in microrings that is compatible with photonic circuits. Finally, we give an outlook of on-going work with photonic circuits in the near-infrared as well as ways to improve electrical injection in the blue spectral range.

A votre arrivée merci de vous présenter à l'accueil muni(e) d'une pièce d'identité

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