



Centre de Nanosciences et de Nanotechnologies

# Séminaire

Vendredi 20 octobre 2017

14 h

C2N, Site Marcoussis Salle R. Planel

Frédéric GARDES

Optoelectronics Research Centre de l'Université de Southampton (UK)

**“Group IV compounds and tunable index silicon nitride for multiplatform integrated photonics “**

## Abstract

Over the last decade, Silicon Photonics has established itself as a mature technology for the fabrication of low-cost, scalable integrated optical components. Silicon-On-Insulator (SOI) has been widely accepted as the ideal fabrication platform for silicon photonics components, allowing the implementation of high-index contrast waveguides using CMOS-compatible processes. A wide range of highly performing SOI-devices aimed at applications for the next-generation optical networking have already been demonstrated, such as ultra-low loss waveguides, optical filters, high-speed optical transceivers, as well as the components for all-optical signal processing. Nevertheless, to increase circuit density and functionality, a range of materials are required to enable back-end-of-line (BEOL) fabrication of multilayer waveguiding systems and associated components such as light sources, modulators and detectors. We demonstrate a range of techniques and deposition methods leading to the fabrication of components such as Ge/SiGe electro-absorption modulators or BEOL SiN waveguides enhancing the platform capability for applications such as temperature insensitive CWDM, all optical signal processing through enhanced non-linear characteristics and suspended devices for sensing applications.