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National PhD in Micro- and Nano-Electronics
SEMINAR

**Versatile technology platforms for silicon
photonics**

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Green Room (D Floor)

Abstract: Silicon photonics enables large volume and low cost production of on-chip photonic components within a CMOS compatible fabrication line. First developments of silicon photonics have been driven by the promise of solving the bandwidth bottleneck problem in data transmission. Nowadays, new and exciting applications such as sensing for integrated Lidar, neuromorphic circuits for A.I., quantum communication and quantum computing are under intensive investigations.

In this seminar, I present the technology platforms developed by CEA-Leti in its CMOS fabrication line: first a silicon waveguide based platform, using 300mm wafer format and including fast p-n junction modulators and high performance Ge-based photodiodes. Then I show the integration of a III-V hybrid laser by direct bonding on the silicon platform. Finally, I present a SiN waveguide based platform featuring ultra-low propagation losses and its application for non-linear photonics.

Bio: Quentin Wilmart received the Ph.D. degree in physics from Ecole Normale Supérieure, Paris, France in 2015. He joined CEA-Leti in 2016, working on design, fabrication and characterization of photonic integrated circuits for high-speed optical communications. His current research focuses on ultra-low loss silicon nitride waveguides and their applications in quantum photonics and nonlinear photonics.

Organizer

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Seminar in English

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