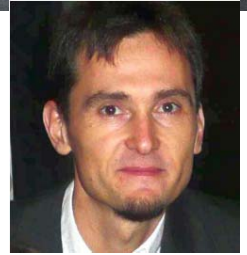


2011年10月31日星期一，玉泉校区行政楼第三会议室，10:00am-11:30am

**Monday, October 31, 2011. Yuquan Campus,
3rd Conference Room in Administration Building 10:00-11:30**



Seminar Announcement

Integrated Silicon Photonics for Optical Interconnects



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Abstract

Silicon photonics has received a considerable interest in the last years due to the foreseeable possibility to integrate on the same silicon chip both electronic and photonic functions.

In the present seminar, we will present our recent results in the fields of **silicon-compatible optical modulators, germanium integrated detectors, and strongly dispersive photonic crystal devices** for dense-WDM applications. The principles of operation of active components to modulate and detect light signals will be described and their main performances in terms of cut-off frequency, power consumption, voltage polarization, modulation efficiency, sensitivity, and footprint, will be given. In addition, the physical principles of the photonic crystal devices chosen to multiplex/demultiplex the optical signals and manage the light beam polarization will be described, and the last experimental realizations will be presented. As a whole, integration schemes of silicon photonics within CMOS will be overviewed.

Biography

Prof. Eric CASSAN integrated the University Paris-Sud staff (Paris, FRANCE) in 2000 as an assistant professor, and obtained the full professor degree from his university in 2009. Since 2010, he is the assistant director of the Paris-Sud graduate school in applied physics, engineering, photonics, and information technologies.

His main research interests are silicon photonics and photonic crystals. Since 2000, he has contributed to many French and European projects on on-chip optical interconnects based on the integration of all-silicon passive and active optical devices. Among these, the French INOPCIS program demonstrated for the first time the possible distribution of light within silicon chips on the scale of the required dimensions to distribute the chip clock by the use of optics instead of electrical interconnects. The French CAURICO and the European HELIOS projects have demonstrated integrated optical modulators and Ge integrated detectors that compete with state-of-the-art results from the IBM and INTEL companies in terms of cut-off frequency, insertion loss, contrast ratio, or device responsivity. Eric CASSAN has also initiated new works in his lab about the non-conventional dispersion properties of photonic crystals.

In the last period, Eric Cassan's interests have been more and more focused on slow waves in photonic crystal structures, unusual phenomena in gradual periodic media, and plasmonics. These items seem promising to him to either enhance light-matter interactions for non-linear optics and all-optical signal processing, reduce the dimensions of optical devices beyond the diffraction limit, or propose new optical integrated functionalities based on properties of sub-wavelength confinement of light in metallic nanostructures.