PAP Seminar Announcement

Short course on

Nonlinear Photonic Crystals and their applications for Optical Signal Processing

by

Dr. Alfredo De Rossi, Thales Research and Technology
Prof. Xavier Checoury, University of Paris-Sud

Venue: MAS Executive Classroom 1 (SPMS-MAS-03-06)
Host: Asst. Prof. Cesare Soci

Introduction: Very recently IBM advertised their new technology, called “silicon nanophotonics”, where optical and electrical signal will coexist on a single silicon die. That is only the latest of a series of impressive breakthroughs which have revolutionized photonics in the last decade. Photonic crystal is a particular photonic nanotechnology which has much progressed in the last years and which is likely to fit in this scheme. Photonic crystals bring specific functionalities, related to the enhancement of the light-matter interaction and the control of the dispersion which are very specific and valuable. We will briefly discuss photonic crystals and how they relate to the emerging field of nanophotonics for signal processing.

29 January  
*Signal processing using nanophotonics*

Alfredo De Rossi

*A photonic crystal platform in diamond for application to linear and non-linear optics*

Xavier Checoury

14:00 - 15:00

15:00 - 16:00

31 January  
*Nonlinear photodetector and self-pulsing oscillation in silicon photonic crystals*

Xavier Checoury

*Enhanced nonlinear effects in photonic crystals: optical transistors, memories and waveguides*

Alfredo De Rossi

11:00 - 12:00

12:00 - 13:00

Speakers Biographies

Alfredo DE ROSSI graduated at the University of Rome, Italy, in 1997 and received his PhD at Rome University in 2002 on nonlinear optics in semiconductor chips. He is with Thales Research and Technology (Thales Corporate Research Laboratory) since 2000. He has been working in nonlinear optics, semiconductor photonic devices, infrared detectors and lasers. Present focus of his research is on photonic crystals for all-optical processing.

Xavier CHECOURY received the engineering degree from the École Nationale Supérieure des Télécommunications (ENST), Paris, and the M.S. Degree from University Pierre et Marie Curie, Paris VI, both in 1998. From 1999 to 2002, he was an R&D Engineer at EADS Telecom (Paris), a subsidiary of the European Aeronautic Defence and Space company (EADS). During his PhD thesis (2002-2005) at the Institute for Fundamental Electronics (University Paris Sud), he studied photonic crystal lasers both from a theoretical and experimental point of view. Since 2006, he works at the University Paris-Sud, first as associate professor and as professor since October 2012. His research interest concerns nonlinear effects in photonic crystals, semiconductor lasers, and numerical modeling.