

Venerdì 3 Maggio 2019, ore 9.10, c/o MO 25, Aula P1.4 (Fa1d)
Dr.Ing. Denis Rideau, ST Microelectronics, Crolles, FR
“Single Photon Avalanche Diodes: a modeling perspective”

Seminario nell’ambito del corso di Laurea Magistrale in Electronic Engineering e del Corso di Dottorato di Ricerca in ICT

Tutti gli interessati sono invitati a partecipare

Abstract: *Single Photon Avalanche Diodes (SPAD) are key optoelectronic detectors for medical imaging, camera ranging and automotive laser imaging detection and ranging (LiDAR) applications. Today, most of SPADs in the market are essentially composed of a micrometric silicon P-N junction associated to a proximity CMOS electronics biasing the system above the breakdown voltage and quenching the avalanche current after the signal detection. CMOS silicon SPADs present low noise and relatively high photon detection efficiency (PDE), together with optimized statistical responses to incoming photon (Jitter). The purpose of this seminar is to provide an overview of the main concepts concerning SPAD devices behavior and their modeling.*

Seminar Outlook: 1) SPAD products and market; 2) Basics SPAD CMOS circuits; 3) The SPAD statistical response: PDE and Jitter; 4) SPAD modelling: A hierarchical Modelling approach; 5) The Dark Count Rate parasitic SPAD response

Denis Rideau received a Ph.D. degree in Physics from the University of Orsay, France in 2001, and an Engineering degree at ESIEE, Paris in 1996. He is currently working at STMicroelectronics, Crolles in France. His research interests are modelling and simulation of CMOS devices, with emphasis on quantum effects, strain effects, Photon detection, and alternative materials for Optical absorption enhancement.

