

**CINTRA seminar presented by
Dr. Christophe Couteau (NTU Adj Asst Prof)**

Title: Towards Integrated Optics at the Nanoscale: Examples of Quantum Nanodevices

Date: **Wednesday, 19th December 2012**

Time: **2:00 pm – 3:00 pm**

Venue: **Lee Foundation Lecture Theatre, Wee Kim Wee School of Communication And Information (WKWSCI-01-LT1), 31 Nanyang Link, Singapore 637718**

Abstract

In the last 10 years, and especially in the last 5 years, the field of nanooptics has experienced a huge development for various applications such as sensing, telecommunication, quantum information or biophysics. This emerging field has a great potential for applied physics as well as for testing fundamental laws of physics. In this seminar I will review briefly the possibility of integrating optics for quantum devices and in particular using plasmonics which allows us to scale down to the nanometer range, usually forbidden by standard laws of optics. I will describe recent experiments showing that quantum systems can also be scale down to nanometer size. In particular, I will develop recent results towards two quantum nanodevices which are an ultimate integrated single photon source and a semiconductor nanowire-based single photon detector.

Key words Quantum Optics, Nanowires, Plasmonics, Integrated Photonics.

About Speaker



Dr. Christophe COUTEAU is currently a CNRS researcher at CINTRA (French-Singapore International Laboratory in Singapore). He is also an adjunct assistant professor at the School of Electrical and Electronic Engineering at NTU and an assistant professor at the French Technological University of Troyes in France. Before that, he spent 3 years in Waterloo in Canada at the Institute for Quantum Computing. He completed his PhD at the University of Paris-Sud Orsay and the University of Grenoble and had positions in Stanford University, Oxford University, National University of Singapore and NRC Canada.

During his career, Christophe Couteau developed expertise in domains such as quantum optics, photonics, material sciences, spectroscopy... He is currently working and developing quantum nanodevices (qnD) which aim to bring together quantum systems and nanotechnologies.