# VITA

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## Research associate in Nanophotonics at ICFO

- Investigation of molecular dynamics: Studying fluorescence in near field using near-field scanning optical microscope (NSOM)

- Investigation of NSOM probes: Fabrication of novel tips and characterization of shape dependency to improve performance and access new information

#### <u>General research interests</u>: Investigation of surface plasmons in thin metal films and nano-structures for light-by light control, sensing, and near field microscopy (PSTM/NSOM)

## Research carried out at Oak Ridge National laboratory, USA:

- 1- Thermo-plasmonic studies fund by the Defense Advanced Research Projects Agency (DARPA) for the development of a controllable diffraction element for spectroscopy and modulation using surface plasmons standing wave.
- 2- Near field investigations of surface plasmon local fields fund by The US Department of Energy, Basic Energy Sciences (DOE-BES).
- 3- Micro-cantilever work fund by The US Department of Energy, Office of Biological and Environmental Research (DOE-OBER) to evaluate Knudsen force in micro-devices and improve atomic force microscopy measurements.
- 4- Micro-cantilever polymer-based recognition-coating fund by the National Institute of Alcoholism and Alcohol Abuse (NIAAA) to develop Alcohol / Drug implant in the human body.

#### **Education**

Ph.D. 2005	Department of Physics, University of Burgundy, Dijon - France
	Dissertation topic: "Surface plasmon assisted multiple energy photons coupling"
	(work conduced at Oak Ridge National Laboratory, USA)
	Advisors: Dr. A. Passian and Dr. T. L. Ferrell at Oak Ridge National Laboratory
	(ORNL), Oak Ridge, Tennessee, USA
	and Prof. J-P. Goudonnet, University of Burgundy, Dijon, France
M.S. 2002	Nanotechnology, Department of Physics, University of Burgundy, Dijon - France <u>Thesis title</u> : "Diffraction by an optical grating resulting of the interference between two surface plasmons"
	(work conduced at Oak Ridge National Laboratory, USA)
	Advisors: Dr. T. L Ferrell and Dr. A. Passian at Oak Ridge National Laboratory (ORNL),
	Oak Ridge, Tennessee, USA

# **Professional Positions**

2005 – Present	Research Associate, Nanophotonics Group, ICFO - Institut de Ciències Fotòniques, Castelldefels 08860 (Barcelona), Spain Also visiting researcher in the NanoBioEngineering Laboratory at the Barcelona Scientific Park (PCB), Barcelona, Spain
2003 - 2005	Research Assistant, Nanoscale Science and Devices Group, Oak Ridge National Laboratory (ORNL), Oak Ridge, Tennessee, USA
2002	Research Assistant, Nanoscale Science and Devices Group, Oak Ridge National Laboratory (ORNL), Oak Ridge, Tennessee, USA
2000	Undergraduate Research Assistantship in the laboratory of Physics of materials for non- linear optics, University of Burgundy, Dijon, France
August 2000	Engineer, Polymers and Adhesive Group, Fournier Group (PLASTO URGO Division), Dijon, France

# **Teaching Experience**

2003 - 2005	Supervising graduate and undergraduate students from the following institutions:
	- UTK, Department of Physics and Astronomy: Undergraduate students carrying out thesis work related to surface plasmons research.
	Recently supervised:
	1) John Wheeler (Thesis topic: "Marangoni forces via surface plasmons")
	- Institut Universitaire de Technologie (IUT), 71200 Le Creusot, France:
	Recently supervised:
	<ol> <li>Vincent Joseph (Thesis topic: "Polymer characterization and imaging utilizing surface plasmon and Photon Scanning Tunneling Microscope")</li> <li>Manuel Trollat (Thesis topic: "Polymer impedance measurement")</li> </ol>
	- Ecole Supérieure d'optique, 91403 Orsay cedex, France: Graduate students carrying out thesis work related to surface plasmon and micro-cantilevers sensing. Recently supervised:
	1) Gabriel Pelligrini (Thesis topic: "Polymer impedance and surface plasmon resonance measurements")
	2) Wissam Ouallem (Thesis topic: "Spray coater for micro-cantilever")
1999 - 2002	Teaching private lessons in Physics and Chemistry