



ΠΡΟΣΚΛΗΣΗ ΣΕ ΟΜΙΛΙΑ

Την Παρασκευή 17/7/2015 και ώρα 14.30,
στο Αμφιθέατρο Πολυμέσων του ΕΜΠ θα λάβει χώρα η ομιλία του
Καθηγητή του Τμήματος Φυσικής του Πολυτεχνείου του **Montréal**

Michel Meunier

με τίτλο

“Plasmonics and ultrafast lasers for nanomedicine applications”

Abstract

Nanomedicine is the branch of nanotechnology that deals with bringing research biomedical tools and clinically useful devices and approaches to the medical world. At Polytechnique Montreal, we develop and model new plasmonic nanostructured biosensors, ultrafast laser nanosurgery and nanoprocessing techniques with the long term objective to introduce new technologies for nanomedicine applications, such as imaging, biodetection and therapy. After a brief introduction to nanoplasmonics, I will discuss two applications in more details:

Plasmonics nano-alloys for hyperspectral bio-imaging: We report on a new size and composition-controlled synthesis of monodispersed AuAg nano-alloy. These are promising for chromatic labeling of biological material because of their composition-dependent plasmon resonance. Examples of hyperspectral 2D and 3D imaging of cells tagged with these nano-alloys will be presented.

Plasmonics ultrafast laser multi-nanoscapel: Irradiating plasmonics nanostructures by an ultrafast laser beam produces highly localised processes on the nanoscale in the biological surrounding medium, yielding to the nanosurgery of cells. These nanoparticles could be functionalised to target specific biological entities, thus performing multiple targeted surgeries on the nanoscale. Complete physical model was developed to determine the basic mechanism underlying this new nanosurgery process. Our laser multi-nanoscapel shows promises as an innovative tool for fundamental research in biology and medicine as well as an efficient alternative nanosurgery technology that could be adapted to therapeutic tools in the clinic.



Michel Meunier obtained his PhD in Materials Science from MIT in 1984 and is Professor of Engineering Physics at Polytechnique Montréal since 1986. He was awarded in 2001 a Canadian Research Chair to perform research and innovation in laser micro/nano-engineering of materials and plasmonics for nanotechnology and biomedical applications. He was also awarded an NSERC Synergy Prize in 2006 for his fruitful university-industry collaboration with LTRIM Technologies, a company he co-founded. He is Fellow of SPIE, OSA and the Canadian Academy of Engineering. He has a research group of ~20 people and has published over 330 papers.