CRETE CENTER FOR QUANTUM COMPLEXITY AND NANOTECHNOLOGY

ΣΕΜΙΝΑΡΙΟ ΚΕΝΤΡΟΥ ΚΒΑΝΤΙΚΗΣ ΠΟΛΥΠΛΟΚΟΤΗΤΑΣ & ΝΑΝΟΤΕΧΝΟΛΟΓΙΑΣ/
CCQCN SEMINAR

Tuesday, 21 January 2014

11:00-12:00

3rd Floor Seminar Room

Novel photonic methods in biomedical imaging

Dr. Giannis Zacharakis

In vivo Imaging Lab (IVIL), Laser and Photonics Division, IESL, FORTH

Abstract

Recent advances in biomedical imaging technologies have revolutionized the way we approach a variety of medical and biological questions and have unveiled several biological processes, mechanisms and functions. Optical Imaging methods facilitate the use of light for the non-invasive visualization of structure and function of biological tissue with sub millimetre resolution and at several centimetres of depth. These technological developments are well suited for *in vivo* imaging from the cell to the whole animal to the human level and have opened new avenues in improving the capabilities of photonic imaging by boosting image accuracy and resolution to the micrometre scale. In the field of microscopic and mesoscopic imaging pioneering new approaches have been demonstrated and implemented involving multiphoton processes and innovative illumination schemes. Recently, by applying novel adaptive optics arrangements that can measure and compensate for scattering the only limiting factor, the highly diffusive nature of light propagation in biological tissue, has been overcome. These very exciting discoveries and advances in biophotonic technologies have now starting to revolutionize the way biological research is performed. The limitation set by traditional microscopic imaging has been overcome and high resolution images deeper than a few micrometers can be obtained.

ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ
ΤΜΗΜΑ ΦΥΣΙΚΗΣ

CAPACITIES