



## ΓΕΝΙΚΟ ΣΕΜΙΝΑΡΙΟ ΤΜΗΜΑΤΟΣ ΦΥΣΙΚΗΣ

# PHYSICS COLLOQUIUM

**Thursday, 30 October 2014**

**17:00 -18:00**

**3<sup>rd</sup> Floor Seminar Room**

**“Biophotonics and Molecular Imaging: Modern tools and Emerging Trends”**

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FORTH-IESL

### **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. The field of *in vivo* molecular imaging is being now widely recognized as one of the most influential for translational research. Novel technological approaches in biophotonics and biophysics have rendered optical techniques a valuable asset due to their advantages in terms of cost, installation and maintenance simplicity and specificity in bio-molecular function. Optical Imaging methods offer a wide range of imaging tools covering all possible scales from single molecule, to cell, to organism, to whole animal and human level.

In the field of microscopic and mesoscopic imaging pioneering new approaches have been demonstrated and implemented involving multiphoton processes and innovative illumination schemes such as light sheet microscopy, optical projection tomography. In the macroscopic scale methods such as fluorescence tomography and photoacoustics have been already established in preclinical and drug discovery research.

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 micrometres can be obtained.