



## Francesco Pavone, Ph.D

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**UCDAVIS**  
DEPARTMENT OF  
BIOMEDICAL ENGINEERING

**BME**  
Biomedical Engineering  
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### *Multimodal Biophotonics of Tissues*

The first part of this talk is a brief review of the non-linear laser imaging techniques that will be displayed. In particular, two photon fluorescence microscopy, lifetime imaging, multispectral imaging, and second harmonic generation microscopy principles will be described. Next, there will be an overview on the applications of these techniques in the field of biomedical imaging. Particularly, tumor detection in tissue imaging applications will be shown in different fields, such as urology, gastrointestinal surgery, dermatology and brain surgery. Morpho-functional characterization of tissue pathologies will be displayed as an interesting tool for tumor early diagnosis. Other types of non tumor disease applications will be also shown together with a demonstration on using laser imaging for follow up of laser therapies. Finally, a fiber-based endoscope based on multidimensional spectral detection (one photon fluorescence, lifetime and Raman detection) will be described with particular applications of tumor detection.

*Biography:* Francesco Saverio Pavone is directing a research group working in the field of biophotonics on single molecule biophysics, microscopy imaging-spectroscopy techniques, biomedical imaging, and the laser manipulation of bio-samples. He is developing new microscopy techniques for high resolution and high sensitivity imaging and for laser manipulation purposes. These techniques have been applied both for single molecule biophysics, single cell imaging and optical manipulation. Pavone is the author of many international papers and editor of international books. He has had more than 70 invited talks, and he is editor of international journals. He coordinates several European projects, and he has organized several international congresses; he is also director of the European Laboratory for Non-Linear Spectroscopy in Florence.

Biophotonics &  
Bioimaging  
Distinguished  
Seminar Speaker

February 12th  
GBSF 1005  
Auditorium  
2:00 - 3:00PM

For more information, please  
visit:

<http://bme.ucdavis.edu/biophotonics/seminars/upcoming-speakers/>

*Light refreshments will be available. There will be a reception after the seminar.*