

The International School of Physics Enrico Fermi: “Microscopy applied to Biophotonics”



The Enrico Fermi International School of Physics, which was founded in 1953 by the then President, Prof. Giovanni Polvani, is one of the most significant cultural activities of the Italian Physical Society. The Courses offered by the School (http://www.sif.it/SIF/en/portal/activities/fermi_school) have acquired considerable international prestige and have become a highly regarded opportunity to meet eminent scientists and young physicists from all over the world. Each of the School's Courses, which are usually held in summer at the Villa Monastero in Varenna on Lake Como are attended by approximately 50 students from all over the world. All the lecture and seminars are collected and

published in the prestigious "Proceedings of the International School of Physics Enrico Fermi" of the Italian Physical Society.

In summer 2011 the International School of Physics Enrico Fermi will present a course dedicated to entitled “*Microscopy applied to Biophotonics*”, to be held in Varenna from 12th-22nd of July. International experts will give lectures spanning the basic science of imaging through advanced microscopy techniques to the state of the art in biomedical imaging. The lectures will be complemented by seminars from world leaders in biophotonics. Specific topics covered by the school will include:

Introduction: overview of biophotonics, fundamentals of microscopy, introduction to nonlinear microscopy, introduction to fluorescence, introduction to lasers for biophotonics, introduction to ultra-microscopy

Fluorescence: genetically expressed fluorophores, nanoparticles, tissue autofluorescence, correlation imaging, FRAP and FCS, FRET, FLIM, multidimensional fluorescence imaging, in vivo cytometry, translation of biomedical applications from laboratory to clinic.

Advanced microscopy techniques: multiphoton microscopy, Raman, CARS and SRS microscopy, nonlinear harmonic microscopy, super resolution, computational microscopy, high throughput/high content microscopy and image cytometry, coherent microscopy, laser manipulation: ablation, nanosurgery, optical knock out, 3-D patterning, trapping

Physiological imaging: endoscopy, intravital microscopy and tomography: diffraction-limited tomography, diffuse tomography, intravital microscopy, endoscopy, OCT

Directors: Paul French (Imperial College, London, UK) , Francesco S. Pavone (LENS, Florence, IT), Peter So (MIT, Boston, USA)

Seminar speakers and lecturers

Jerome Mertz, Colin Sheppard, Steve Vogel, Hans Ulrich Dodt, Wolfgang Langbein, Chris Dunsby, Enrico Gratton, Hans Gerritsen, Valery Tuchin, Stefan Andersson Engels, Juergen Popp, Stefan Hell, Karsten Koenig, Gary Tearney

Contacts and secretariat:

Daniela Selisca
dansel@lens.unifi.it
tel +390554572479; fax. +390554572520