Advanced Optical Fluorescence Microscopy Methods II

Course at glance

Advanced Optical Fluorescence Microscopy 2 deals with quantitative fluorescence microscopy and spectroscopy techniques that are of interest for investigators in biophysics, biology, biomedical engineering and materials science.

Instructor

Luca Lanzanò

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Credits 3

Synopsis

This course considers, as starting point, fundamental aspects of fluorescence spectroscopy (absorption/ emission spectra, lifetime, energy transfer, intensity fluctuations, etc) that are the basis of advanced fluorescence microscopy techniques. An overview of quantitative fluorescence-based methods, including Forster Resonance Energy Transfer (FRET), Fluorescence Lifetime Imaging (FLIM), Fluorescence Correlation Spectroscopy (FCS), will be the core of the course. The course will focus on the principles, the experimental aspects and examples of applications of the techniques. The methods of analysis will also be discussed.

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Syllabus

The Course develops in about 9/10 hours in the classroom.

- Quantitative Fluorescence Spectroscopy
- Overview of advanced fluorescence spectroscopy/microscopy methods
- Critical discussion related to the biological, medical or materials science questions

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Final examination: to be defined

Specific textbook for this Course:

- Molecular Fluorescence: Principles and Applications, Bernard Valeur, Wiley-VCGH Verlag GmbH

Venue

IIT - Via Morego, 30 16163 Genova

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Course date

May 2015