Laboratory of Optical Fluorescence Microscopy Methods

Course at glance

The practical course will introduce at the use of the most advanced and modern microscopy techniques, using the microscopes at the Nikon Imaging Center (NIC@IIT).

Instructor

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Credits: 3

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Synopsis

The goal of the course is to teach and train fundamental knowledge and skills in microscopy. Students will learn how to apply these techniques to their own present and future projects. Practical work consists of 4 different modules covering a specific technique/topic (see syllabus). Students will participate to all practical modules. For the practical training the students will use the most state-of-the-art instrumentation. Such an instrumentation is able to cover all the fundamental needs of modern biology, namely high temporal and/or spatial resolution, live cell imaging and multimodal microscopy. A fundamental step for the success of super resolution experiments relay on the sample preparation. Nevertheless, these protocols preparation show many common aspects with standards protocols, some critical steps need to be added. These critical steps will be discussed in the course.

Syllabus

The Course develops in about 9/10 hours in the lab.
Hands on:

- Time lapse
- Spinning disk
- Confocal A1 Nikon
- SIM and/or STORM

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The examination consists in a report on the experiments carried on during the course.

Reading list,

Please refer to the Educational Program Section of the NIC@IIT - http://www.nic.iit.it/education-program-training/
Specific textbooks for this Course are:

- A.Diaspro (ed.), Confocal and Two-Photon Microscopy: Foundations, Applications and Advances, Wiley (2001)
- A.Diaspro (ed.) Optical Fluorescence Microscopy, Springer (2011)
- A.Diaspro (ed.) Nanoscopy and Multidimensional Optical Fluorescence Microscopy, Taylor and Francis/cHapmann and Hall/CRC (2009)
- J.Pawley (ed.) Handbook of Confocal Microscopy, Springer (2006)

Venue

NIC@IIT, IIT - Via Morego, 30 16163 Genova
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Course date

July 2015