FACOLTÀ DI SCIENZE MATEMATICHE, FISICHE E NATURALI
DIPARTIMENTO DI MATEMATICA E FISICA "NICCOLÒ TARTAGLIA"
INTERNATIONAL DOCTORAL PROGRAM IN SCIENCE

Fluorescent proteins and their use in super-resolution imaging

Introduce:
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Abstract:

Super-resolution fluorescence microscopy has become a method of choice for imaging biological structures and their nanoscale dynamic in live cells that are unresolvable by traditional diffraction-limited light microscopy. Many super-resolution techniques, including PALM, SOFI, STED, utilize genetically encoded photocontrollable fluorescent proteins. Genetically encoded fluorescent proteins (FP) have become an indispensable tool in various fields of life science as a controlled method to fluorescently label a target protein in a living cell. An important feature of these proteins is that the optical properties can be controlled by light of specific wavelengths. In this presentation I will discuss:
a) the three major groups of super-resolution fluorescence microscopy techniques: those based on highly localized fluorescence emission volumes; those based on structured illumination; and those based on single-molecule localizations;
b) the biochemical and photophysical properties of photocontrollable fluorescent proteins that are relevant to their use in super-resolution microscopy; I then provide examples of recently developed photoactivatable, photoswitchable and reversibly photoswitchable fluorescent proteins.

Seminario

Venerdì 23 marzo 2018
Sala Riunioni, ore 12.00
Via dei Musei 41 - Brescia

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