



SEMINAIRE ISMO

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Fast multiphoton imaging of embryonic development

Multiphoton microscopy has demonstrated unique advantages to image embryonic development *in vivo*, including large imaging depth or multimodality, that is the ability to combine nonlinear fluorescence excitation with other contrast mechanisms, such as second or third harmonic generation. However, the acquisition speed is often a critical limit for multiscale imaging or for investigating fast biological phenomena. I will discuss several strategies we designed to circumvent or overcome this limitation. Indeed, through optical or image processing approaches, by using light-sheet illumination or taking advantage of biological periodicities and imaging artifacts, we captured and investigated processes of extreme dynamics deep inside living embryos. Thus, I will show how to perform multicolor multiphoton imaging in a beating embryonic heart, to resolve the blood flow or cardiac muscle contraction at micrometer scales, to record neuronal activity in an entire developing brain, to study beating cilia or to quantify the microscopic flows they generate deep inside embryonic tissues. Capturing and quantifying such dynamic processes result in novel insights into embryonic development and open opportunities to understand this fascinating event.

Mardi 11 juin 2019 à 11 h

Amphithéâtre du bât 520 (3^{ème} étage)

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