



Interdisciplinary Institute for Neuroscience
Université de Bordeaux, CNRS – UMR 5297

Title:

Searching of an engineer to develop light-sheet microscopy for neurosciences applications

Project description

Light Sheet Fluorescence Microscopy technics (LSFM) has demonstrated to be a method of choice for 3D imaging biological samples at various spatial and temporal scales with minimal photo-damaging effects. Several solutions have been developed in the field of neuroscience to image biological samples ranging from fixed whole brains, to single dissociated neurons growing on a coverslip. In this regard, the Interdisciplinary Institute for Neuroscience (IINS) and the Bordeaux Imaging Center (BIC) are equipped with 3 complementary LSFM techniques: (1) an ultramicroscope for whole brain imaging; (2) a Lattice Light Sheet Microscope (LLSM) to image the first layers of brain slices at high spatial resolution; (3) a single objective selective plane illumination microscope (soSPIM) dedicated to 3D cell cultures and in-depth single-molecule localization microscopy (SMLM).

We aim to complete our catalog by implementing a solution based on the Oblique Plane Microscopy (OPM) architecture, which will be dedicated to fast neuronal sample imaging, ie. brain slices, equipped with local photo-manipulation.

Missions:

The candidate missions will be: i) to assemble a custom OPM to address specific neurobiological questions, ii) to develop the instrument control software and iii) to participate in the testing and optimization of the OPM in close collaboration with neuroscientists.

Candidate profile:

We seek for an independent, motivated and enthusiastic candidate, with an interest in neuroscience and a strong expertise in optics and fluorescence microscopy. Strong interest and good skills in programming for instrumentation are required. The candidate will work in an English-speaking environment, in close interactions with the neuroscientists' team of the Bordeaux's Neurocampus.

Environment:

The candidate will be hosted in the **Quantitative Imaging of the Cell** team, a R&D team with an internationally-recognized expertise live cell microscopy and quantitative analysis.

The **Bordeaux Imaging Center**, where the final instrument will be eventually transferred, is an imaging platform with a department dedicated to photonic microscopy for biology. It is equipped with several advanced fluorescence microscopy systems (Confocal, STED, SMLM, LLSM, ...). The BIC and IINS are hosted in the same building, a brand new neuroscience research center located on the Carreire campus of the Bordeaux University.

The **Interdisciplinary Institute for Neuroscience** is an international level research center in neurosciences. It gathers 14 teams with complementary and interdisciplinary expertise, as well as several platforms to address cutting-edge questions in various aspects of neurosciences.

Contract:

A 1 year, renewable, engineer position is available in the framework of the French "Grands Programmes de Recherche" **BRAIN** awarded to the Bordeaux Neurocampus.

Applicants should send a CV, a motivation letter and contact details for at least two referees to:

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Team: Quantitative Imaging of the Cell

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