Postdoctoral position

Toward nonlinear Multimodal Endomicroscopy

Current surgical biopsy procedure takes several days to be analyzed by anatomopathologists, who provide analysis report to the surgeon a few days after the surgical intervention. Moreover, tissue biopsies are often associated with patient discomfort as they are highly invasive. In addition, the lack of precise guidance often leads to inaccuracies in the selection of tissue regions for biopsy. To eliminate this time consuming process is of clinical need, as well as to increase the accuracy of tissue diagnostics and the patient comfort. We propose to address these needs by developing a nonlinear endomicroscope able to give optical biopsy results on the spot, which will lead to the immediate diagnosis and an orientation of the choice for optimal therapy means. It will also limit the extraction of tissue sample for conventional biopsy analysis. In this device, we will combine different imaging contrasts, including nonlinear optical fluorescence imaging (TPF), second harmonic generation (SHG), reflectance, lifetime and spectroscopic analysis. This multimodality is crucial to allow a reliable analysis of optical signal by anatomopathologists in comparison to the gold standard Hematoxilin and Eosin histological analysis. Fibered endomicroscope could be used during the surgical operation, thus offering deep subcellular resolution without adding invasivity.

The recruited post-doc will be involved in the development of the miniaturized scanning system. They will participate to the study of the choice of the adapted distal optics. They will be in charge of the validation of the global collection architecture of the endomicroscope systems in term of efficiency and multimodality.

The position is available, starting in October 1st 2017 for one year, and will be located at IMNC lab within the scientific campus of Paris-Saclay, in Orsay, France.


Required skills:

- Strong experience in optical instrumentation
- High degree of motivation and strong interest towards interdisciplinary work
- A good knowledge in fluorescence tissue imaging
- Skills in optical design (Zemax) will be appreciated

Contact:

Please send your application (CV + letter of motivation + 2 contact persons) to:

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