

Postdoctorate level position
in microscopy and computational imaging
Institut Fresnel – Marseille – France



Send a full CV, a motivation letter and two reference contacts to:

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The EquipEx+ project IDEC "Computational Imaging and Detection" (<https://www.fresnel.fr/spip/spip.php?article2556>) coordinated by Institut Fresnel focusses on the new generation of optical imaging and detection instruments based on innovative co-design, bridging instrumentation and computational approaches. In this context, Institut Fresnel brings together competencies in conceptual and numerical developments and in advanced instrumentation.

This postdoctorate-level position, supported by the Aix Marseille University Excellence Initiative A*midex and the IDEC project, aims at developing imaging tools for biology. It targets recent developments on novel smart-scanning microscopy tools that use adaptive scanning approaches relying on in situ sample features' estimation [1] and optimized polarization modulation for molecular organization imaging [2]. The specificity of these integrated instruments is the hybridization between computational tools (estimation, inversion, optimization) and instrumentation in fluorescence microscopy, to meet current imaging needs such as speed, low signal-to-noise ratio conditions, and reduced photo-damage and photo-toxicity.

The candidate will develop new fluorescence imaging microscopes for adaptive scanning and optimized polarized microscopy in collaboration with the research teams and platform PHOTONICS members (<https://www.fresnel.fr/spip/spip.php?article1162>). The candidate will be in charge of the design based on existing proofs of principles, the implementation of these novel microscopy tools, and their operation in collaboration with partners from laboratories and industry, in particular in the field of cell and developmental biology.

The applicant should hold a doctorate involving instrumentation physics and optics, with a strong interest in biology or biomedical applications. Knowledge is expected in optical instrumentation and in particular microscopy, interfacing of optical instruments and MatLab and/or Python programming.

[1] F. Abouakil, et al. An adaptive scanning strategy for the imaging of biological surfaces . In press in Light: science and applications (2021)

[2] M. Hofer, et al. High speed polarization resolved Coherent Raman Scattering imaging, Optica 4 (7), pp. 795-801 (2017)

Location: The project development will take place at the Institut Fresnel, Marseille, France (<https://www.fresnel.fr/>) within the PHOTONICS platform and the Equipex IDEC project. Institut Fresnel (about 200 persons in total) is a research laboratory associated to Aix-Marseille Université, CNRS and Centrale Marseille, located on the Campus Saint-Jérôme in Marseille.

Start date: before 31/03/2022

Duration: 24 months

Gross salary: about 2 400 € to 2 700 € /months depending on the level of experience.