



SORBONNE
UNIVERSITÉ

AGENCE NATIONALE DE LA RECHERCHE
ANR



POSTDOCTORAL POSITION IN MULTIPLEXED FLUORESCENCE IMAGING OF FLUORESCENT PROTEINS

A 18 months postdoctoral position is available at the Chemistry Department of Ecole Normale Supérieure (ENS, Paris). The project, funded by Sorbonne University and the French National Research Agency (ANR), relies on a collaboration between A. Espagne, L. Jullien, T. Le Saux from the group «Physical and Biological Chemistry of Living Matter» at ENS with expertise in dynamic contrast fluorescence imaging [1-5] and time-resolved spectroscopy of fluorescent proteins,[6] and E. Beaurepaire, W. Supatto from the Laboratory Optics and Biosciences at Ecole Polytechnique (Palaiseau) with expertise in advanced microscopies [7,8], and J. Livet from the Institut de la Vision (Paris) with expertise in developmental neurobiology and genetic engineering [9].

The candidate will characterize and exploit new photoreactions in fluorescent proteins with one- and two-photon excitation. He/she will implement new protocols of fluorescence imaging in confocal microscopy and light sheet microscopy, which exploit the dynamics of these reactions.

Starting date is flexible from September 2021. Net salary: 2600 €/month.

Candidates should hold a PhD in physical chemistry or biophysics and have a solid background in photophysics and photochemistry and a taste for fluorescence imaging. A former experience in fluorescence microscopy (especially confocal microscopy or light sheet microscopy) will be appreciated.

To apply, please send a detailed resume including list of publications, the names of at least two referees and a brief motivation letter to the scientific coordinators of the project, Dr. Thomas Le Saux (Thomas.LeSaux@ens.psl.eu) and Prof. Ludovic Jullien (Ludovic.Jullien@ens.psl.eu).

References

- [1] J. Quéraud, R. Zhang, Z. Kelemen, M.-A. Plamont, X. Xie, R. Chouket, I. Roemgens, Y. Korepina, S. Albright, E. Ipendey, M. Volovitch, H. L. Sladitschek, P. Neveu, L. Gissot, A. Gautier, J.-D. Faure, V. Croquette, T. Le Saux, L. Jullien, Resonant out-of-phase fluorescence microscopy and remote imaging overcome spectral limitations, *Nat. Comm.* **2017**, *8*, 969.
- [2] R. Zhang, R. Chouket, M.-A. Plamont, Z. Kelemen, A. Espagne, A. G. Tebo, A. Gautier, L. Gissot, J.-D. Faure, L. Jullien, V. Croquette, T. Le Saux, Macroscale fluorescence imaging against autofluorescence under ambient light, *Light: Science & Applications*, **2018**, *7*, 97.
- [3] R. Zhang, R. Chouket, A. G. Tebo, M.-A. Plamont, Z. Kelemen, L. Gissot, J.-D. Faure, A. Gautier, V. Croquette, L. Jullien, T. Le Saux, Simple imaging protocol for autofluorescence elimination and optical sectioning in fluorescence endomicroscopy, *Optica*, **2019**, *6*, 972.
- [4] R. Chouket, A. Pellissier-Tanon, A. Lemarchand, A. Espagne, T. Le Saux, L. Jullien, Dynamic contrast with reversibly photoswitchable fluorescent labels for imaging living cells, *Chem. Sci.*, **2020**, *11*, 2882-2887.
- [5] R. Chouket, A. Pellissier-Tanon, A. Lemarchand, A. Espagne, T. Le Saux, L. Jullien, Dynamic contrast for overcoming spectral interferences in fluorescence imaging, *J. Phys.: Photonics*, **2020**, *2*, 032003.
- [6] F. Lacombat, P. Plaza, M.-A. Plamont, A. Espagne, Photoinduced chromophore hydration in the fluorescent protein Dreiklang is triggered by ultrafast excited-state proton transfer coupled to a low-frequency vibration", *J. Phys. Chem. Lett.* **2017**, *8*, 1489.
- [7] L. Abdeladim, K.S. Matho, S. Clavreul, P. Mahou, J.-M. Sintes, X. Solinas, I. Arganda-Carreras, S.G. Turney, J.W. Lichtman, A. Chessel, A.-P. Bemelmans, K. Loulier, W. Supatto, J. Livet, E. Beaurepaire, Multicolor multiscale brain imaging with chromatic multiphoton serial microscopy, *Nature Communications*, **2019**.
- [8] V. Maioli, A. Boniface, P. Mahou, J. Ferrer Ortas, L. Abdeladim, E. Beaurepaire, W. Supatto, Fast in vivo multiphoton light-sheet microscopy with optimal pulse frequency, *Biomedical Optics Express*, **2020**.
- [9] T. Kumamoto, F. Maurinot, R. Barry-Martinet, C. Vaslin, S. Vandormael-Pournin, M. Le , M. Lerat , D. Niculescu , M. Cohen-Tannoudji, A. Rebsam, K. Loulier , S. Nedelec, S. Tozer, J. Livet, Direct Readout of Neural Stem Cell Transgenesis with an Integration-Coupled Gene Expression Switch, *Neuron*, **2020**.