POSTDOCTORAL POSITION

IN TIME-RESOLVED SPECTROSCOPY AND FLUORESCENCE IMAGING

A 2-year postdoctoral position is available at the Chemistry Department of Ecole Normale Supérieure (ENS), in the center of Paris. The project, funded by the French National Research Agency (ANR), relies on a collaboration between two components of the group «Physical and Biological Chemistry of Living Matter», respectively specialized in femtosecond spectroscopy of proteins [1,2] and in dynamic contrast fluorescence imaging [3,4]. It involves an additional external collaboration with the team of P. Müller and K. Brettel (I2BC, CEA, Université Paris-Saclay) for time-resolved spectroscopy in the nanosecond time-scale and longer [5,6]. The successfull candidate will characterize new photoreactions in fluorescent proteins and participate in the development of new fluorescence imaging methods exploiting the dynamics of these reactions. He/she will take part in the upgrade of the different optical and spectroscopy set-ups that will be used during the project, and in the preparation of fluorescent protein samples.
Starting date is flexible from November 2019. Net salary: 2600-3000 €/month depending on experience.
Candidates should hold a PhD in physical chemistry or biophysics and have a solid background in photochemistry and time-resolved spectroscopy.

References:

[1] F. Lacombat, A. Espagne, N. Dozova, P. Plaza, P. Müller, K. Brettel, S. Franz-Badur, L.-O. Essen, Ultrafast PCET oxidation of a terminal tyrosine promotes light activation of an animal-like cryptochrome", J. Am. Chem. Soc. 2019, doi: 10.1021/jacs.9b03680

[2] 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

[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] J. Quérard, 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

[5] P. Müller, E. Ignatz, S. Kiontke, K. Brettel, L.-O. Essen, Sub-nanosecond tryptophan radical deprotonation mediated by a protein-bound water cluster in class II DNA photolyases, Chem. Sci. 2018, 9, 1200

[6] M. Byrdin, C. Duan, D. Bourgeois, K. Brettel, A long-lived triplet state is the entrance gateway to oxidative photochemistry in green fluorescent proteins, J. Am. Chem. Soc. 2018, 140, 2897

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 coordinator of the project, Dr. Agathe Espagne (agathe.espagne@ens.fr).

Webpage of the group :
https://www.chimie.ens.fr/recherche/laboratoire-pasteur/physical-and-biological-chemistry-of-living-matter/