PhD-position in photochemistry and solar energy conversion at Paris-Saclay University (France)

We are seeking a highly motivated PhD candidate to join our research group at the I2BC, Paris-Saclay University. The project entitled "Unraveling the intermediate species involved in singlet fission processes to enhance photocatalytic reactions" is an exciting opportunity to explore the intersection of bio-inspiration for solar energy transduction, with a focus on singlet fission to enhance the efficiency of multi-electron photooxidation.

Project Overview: The project aims to use organic pigments, like rylenes, capable of generating two long-living triplet states from each absorbed photon by a process called singlet fission (SF). The student will investigate a variety of covalently linked compounds (antennas) capable to perform SF. Then, he/she will follow the cascade of events after photon absorption using advanced spectroscopic techniques like femtosecond transient absorption and femtosecond stimulated Raman spectroscopy (FSRS). The best performing antennas will be grafted to ruthenium catalyst to create the first organic systems capable of performing singlet fission mediated multi-electronic photocatalysis.

Key Responsibilities:

- Design, and perform experiments to evaluate the photophysical processes using femtosecond transient absorption, time resolved fluorescence and FSRS.
- Evaluate the efficiency of multi-hole injection from the rylenes into the catalyst.
- Disseminate the results in congresses and talks.
- Participate in the analysis and writing of scientific publications.

Required Skills: Expertise in photochemistry, capable to work independently, experience with ultrafast events, proficiency in English.

This position offers a unique opportunity to contribute to the field of sustainable energy and gain expertise in advanced spectroscopic techniques. The thesis will be carried out in the frame of a collaborative ANR project including teams with complementary expertise: gas-phase spectroscopy, advanced time-resolved techniques, computational chemistry. The candidate should be able to integrate a multidisciplinary environment.

If you are passionate about light energy harvesting and photophysics, we encourage you to apply to join our team in pushing the boundaries of scientific discovery!

Supervisor: Manuel LLANSOLA-PORTOLES **e-mail:** manuel.llansola@i2bc.paris-saclay.fr
Co-supervisor: Annamaria QUARANTA **e-mail:** annamaria.quaranta@cea.fr

Work Place: CEA Saclay/Institut de Biologie Intégrative de la Cellule, Gif-sur-Yvette, France.

Beginning of the contract: 1 October 2024 **Duration of the contract:** 3 years

Salary: 2135 € brut/month **Group websites**: **I2BC link** and **JOLIOT link**

Application in the following link: http://bit.ly/applyphdsingletfission