

<b>Title</b>	<b>Development of new sustainable processes mediated by light to access biologically relevant targets.</b> Sviluppo di processi sostenibili mediati dalla luce per l'accesso a molecole bioattive
<b>PI</b>	<b>Prof. Luca Dell'Amico</b>
<b>Research Group</b>	<b>Dell'Amico group</b>
<b>Curriculum</b>	<b>Scienze Chimiche</b>
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**Project description:**

Solar light is an inexhaustible and free reactant that can promote the construction and transformation of molecules. The chemistry community is particularly interested in photocatalysis, which uses light to promote a chemical transformation. Photocatalysts (PCs) play a key role in transformative light-driven processes. The selection and structural refinement of PCs can channel reactivity to diverse mechanistic pathways, but often proceeds via trial and error. The project focuses on the development of new and sustainable processes mediated by visible light. In particular, the PhD will be trained on the most modern synthetic techniques as well as on the physicochemical and photophysical characterization of organic photocatalysts and reaction intermediates.

The PhD will be involved on: 1) the design and development of novel bimodal organic PCs able to catalyze thermodynamically demanding and opposite photoredox events exploiting their electronically excited state; 2) the use of these new catalysts to activate inert substrates, and finally, to extend the reactivity to implement novel selective transformations of biological targets under physiological conditions. These project core concepts will be accomplished by the rational evaluation and optimization of the PCs physicochemical and structural properties as well as the careful analysis of the mechanistic features subtending the light-driven chemical events.

The project is highly interdisciplinary and involves a stage at Paris Saclay University and/or Strasbourg University. Two of the top leading research groups in the field of modern synthetic chemistry.

**Hosting group(s) for the period abroad (tentative list, may change):** Prof. Emmanuel Magnier, Paris Saclay University France and/or David Lebeuf Strasbourg University, France