

Organometallic Catalysis under Visible Light

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Over the last decade, we have been involved in the implementation of organometallic catalysis to the development of sustainable radical chemistry. We have introduced bis-catecholato silicates as versatile sources of alkyl radicals upon photocatalysis. Using Ir(III) or organic photocatalysts, alkyl radicals can be engaged in intermolecular reactions. This process can be merged with Ni-catalyzed C_{sp2} - C_{sp3} cross-coupling reactions.

In parallel, and following our interest in gold catalysis, our recent efforts in photoredox/gold dual catalysis will also be presented. We have notably evidenced the first examples of photosensitized oxidation additive to an organogold(I) complex leading to C_{sp2} - C_{sp} cross-couplings.

This lecture will also unveil the crucial use of organosilicon derivatives as another thread running through our research in different contexts.



Louis Fensterbank is an engineer from CPE Lyon. He obtained his PhD in 1993 from SUNY Stony Brook under the guidance of Scott Sieburth. After a lecturer position at the Université Pierre & Marie Curie (UPMC), he was appointed in 1995 as a CNRS Chargé de Recherche in Max Malacria's lab. In 2004, he became Professor at UPMC, now Sorbonne Université. In 2023, he was elected at Collège de France and he holds the Activations in Molecular Chemistry Chair.

His research interests concern the discovery of new molecular transformations relying on radical or organometallic processes, possibly light-activated, and their applications to the synthesis of substrates with relevant properties. He is also involved in organosilicon chemistry. Co-author of more than 250 publications (h-index: 67, more than 13600 citations (Scopus)). Louis Fensterbank has received several awards, notably the Silver Medal of CNRS in 2017, Organic Chemistry Division Prize of the French Chemical Society 2016, Clavel-Lespiau Prize of the French Academy of Sciences 2014. He is Fellow of the Royal Society of Chemistry and member of the Academia Europaea.