# SEPTEMBER 2025

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**September 10th, 11h**
**Room 101, 1st Floor**
**Corridor 32 - 42**
**Campus P et M Curie**
**Sorbonne Université**


**Contact**:
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**Hisako HASHIMOTO** (Tohoku University, Sendai, Japan)
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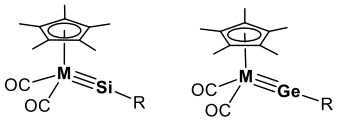
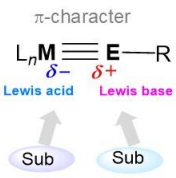
## *Heavier Carbyne Complexes of Group 6 Metals: From Synthesis to Catalytic Applications*


**Abstract.** Heavier analogs of carbyne complexes, namely, tetrylyne complexes featuring M≡E bonds (E = Si–Pb), have garnered significant attention due to their potential catalytic activity, inspired by the well-established chemistry of carbyne complexes. Although significant advances have been made in this field over the past two decades, studies on reactivity remain limited, and catalytic transformations involving tetrylyne complexes have only recently been reported by our group.

In this talk, I will present our work on the silicon and germanium analogues of carbyne complexes of group 6 metals, focusing on their synthesis, structural characterization, and fundamental reactivity toward organic substrates such as carbodiimides, imines, aldehydes, and alkynes. I will also discuss their catalytic activity in the hydrosilylation of carbonyl compounds, which represents the first catalytic example involving a tetrylyne complex. The reaction mechanism is proposed based on DFT calculations and kinetic studies.


M = Group 6 transition metals

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**September 15th, 11h**
**Auditorium Astier**
**Building Esclangon**
**Campus P et M Curie**
**Sorbonne Université**

**Contact:**
**Rodrigue LESCOUËZEC (rodrigue.lescouezec@sorbonne-universite.fr)**

**Birgit WEBER** (Institute for Inorganic and Analytical Chemistry, Friedrich Schiller University Jena, Germany)
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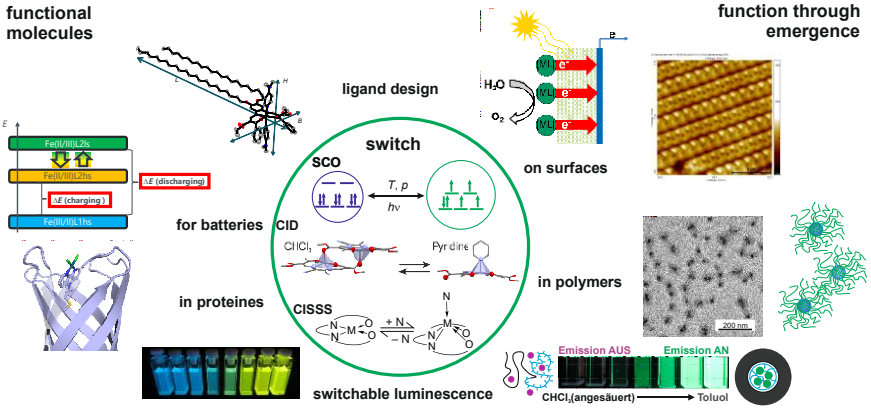
## *The spin state matters – from switchable complexes to catalysis*

**Abstract.** The synthesis of multifunctional materials is generally considered an important step from basic research to more application-oriented research. One way to realize such materials is the use of switchable complexes. Here, different switching possibilities are available, such as iron(II) spin crossover (SCO) complexes, nickel(II) based coordination induced spin state switching (CISSS), or coordination induced dissociation (CID) for zinc(II) complexes. In all cases, the switching can be triggered by a wide range of physical or chemical stimuli. Structural and/or electronic changes associated with this transition can be exploited for applications, e.g., in the field of sensors.
To allow for a better readout, the combination of the switching process with a luminescence readout is desirable. Here, we will illustrate three different possibilities based on the different switching types. We will discuss which preconditions need to be fulfilled to observe luminescence for open-shell 3d metal centers and how the different sensing units can be integrated in self-assembled dBCP micelles to improve their processing.
Luminescent 3d metal complexes are not only of interest for their potential sensing application, but they might also serve as photocatalysts. Our first results on the use of the complexes as catalysts will be presented and how our experience with composite materials can be transferred to catalytic applications.

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**September 22nd, 11h**
**Auditorium Astier**
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## *Synthetic Development To Access Fluorinated Molecules*

**Abstract.** Organofluorine chemistry is a fascinating research field in rapid expansion. Beyond the strong interest that represents fluorinated molecules in materials science, pharmaceuticals and agrochemicals as well as modern drug design, innovation is still required to push further the boundaries of knowledge in this appealing research field and to achieve new synthetic challenges. Besides, the development of more sustainable transformations and among them, reactions based on transition metal catalyzed direct C-H bond functionalization have reshaped the field of organic chemistry over the last decade. In that context, aiming at designing new tools to access original fluorinated molecules, our group developed approaches combining organofluorine chemistry and transition metal catalyzed C-H bond functionalization. Such advances were possible thanks to the design of original reagents.

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**September 29th, 11h**
**Auditorium Astier**
**Building Esclangon**
**Campus P et M Curie**
**Sorbonne Université**

**Raphaël FRÉDÉRICK** (University of Louvain, Brussels, Belgium)
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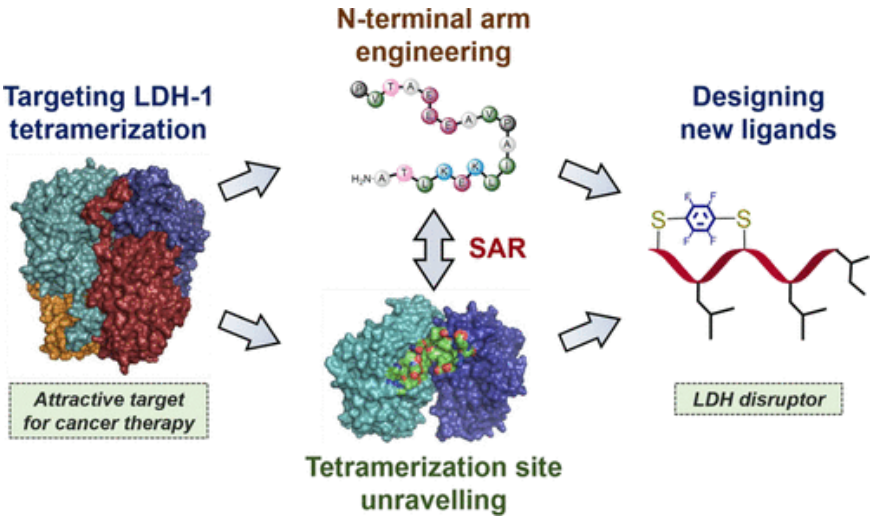
## *Targeting protein self-association in drug design*

**Abstract.** The last two decades have seen the targeting of protein-protein interactions (PPIs) emerging as a new strategy of drug design. This strategy allowed to tackle challenging drug targets – sometimes called undruggable – whose active site cannot usually be drugged. From cancer therapy to anti-infectious agents, reports of successful therapeutics targeting PPIs are now numerous. Besides these therapeutic strategies, the last years witnessed the ever-growing importance of chemical biology, as well as a significant technical progress that has unlocked the study and targeting of more and more challenging protein interfaces. Among these new landscapes resides the targeting of self-assembling proteins. Indeed, so far, most molecules targeting PPIs have been designed to interact at heteromeric interfaces, ie surfaces between distinct protein chains.

The originality of our approach is to extend the methodology to homomeric interfaces, ie targeting PPIs between monomers of the same drug target in order to disrupt its quaternary structure. These numerous PPIs constitute an underexplored pool of potential targets for therapeutic interventions.

In this talk, the concept of homomeric disruption as a strategy to target challenging or previously undruggable proteins will be illustrated through our recent work. Specifically, we focus on targeting (i) the tetramerization site of lactate dehydrogenase (LDH) using (stapled) peptides and small molecules and (ii) the tetramerization site of arginase (Arg-1). The presentation will highlight our use of biophysical and chemical biology tools to investigate protein self-assembly, including NMR spectroscopy (WaterLOGSY experiments), differential scanning fluorimetry (DSF), microscale thermophoresis (MST), mass photometry (MP), size-exclusion chromatography with multi-angle light scattering (SEC-MALS), fluorescence spectroscopy, and mass spectrometry.

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