

Thursday, 17th May, 12.00 pm, Seminar Room

Host: Dr. Aitziber L. Cortajarena

Photoswitchable Organometallics

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In the last few decades, the development of photo-responsive materials has become an intensive area of research. These substances are intended for the production of “smart chemical systems”, whose properties—and eventually functionality—are controlled by changes of the environment (light irradiation). These systems have been already implemented in a wide range of modern materials and devices for daily applications such as sunglass lenses, memory devices, photochromic inks, etc.

In spite of the importance and versatility of organometallic complexes, smart photo-responsive examples remain rather unexplored in comparison with the plethora of well-known light-triggered organic switches. In principle, photo-responsive metal complexes can be obtained by incorporation of organic photochromic units in the structure of their ligands. These photo-sensitive ligands, rather than acting as conventional spectators that tune the properties of their complexes, transform them into dynamic smart entities able to offer a functional response to an external stimulus.¹

In our group, we work on the development of such photo-responsive organometallics for diverse applications. We have explored several areas of application exploring some of the most prominent properties of organometallics. Namely, their luminescence, catalytic activity or their potential use as metallodrugs.

As will be discussed, the compatibility of the metal coordination and the photo-response of the molecular switch is an issue that needs to be carefully addressed.