Annonce du séminaire du Dr. Pierre Mobian,
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Ti(IV) self-assembled architectures

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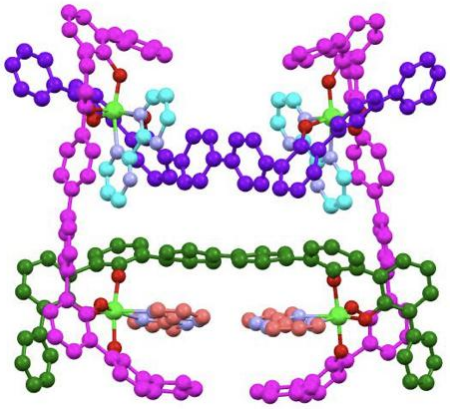
Titanium alkoxides are extensively employed as precursors for sol-gel chemistry and materials science.[1] These compounds are also essential in numerous organic transformations. Concerning their reactivities, titanium alkoxides are generally water-sensitive and their chemistry is highly difficult to predict. In order to circumvent these particular features, we rationally designed a flexible stable chiral monomeric titanium(IV) complex. This C_2-symmetric octahedral complex incorporates two substituted 2,2-biphenolato entities, and two labile isopropanol molecules complete the metal-coordination sphere.[2] We have shown that this precursor offers a rich coordination chemistry through the substitution of the alcohol ligands by various nitrogen bidentate ligands, permitting to generate a large library of TiO_4N_2-based complexes.[3] Next, we extended this chemistry to the generation of molecular multicomponent self-assembled TiO_4N_2-based architectures in the presence of a bis-biphenol strand[4] and several nitrogen ligands.[5]

Thereby, this talk aims to describe the strategy permitting to generate helical complexes built around TiO_4N_2-nodes. In particular, this presentation will emphasize how the nature of the nitrogen ligands deeply influences the structures of these assemblies and permits to control the nuclearity of these molecular objects. Recent examples of such compounds generated through a self-assembly approach relying on Ti(IV) centres, as a dynamic trinuclear circular heterochiral assembly[6] and an alternate [2+2] grid[7] (see below), will be presented.



An alternate [2+2] grid constructed around TiO_4N_2-nodes

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2) Diebold, C.; Mobian, P.; Huguenard, C.; Allouche, L.; Henry, M. *Dalton Trans.* **2009**, 10178-10180.
3) Weekes, D. M.; Baradel, N.; Kyritsakas, N.; Mobian, P.; Henry, M. *Eur. J. Inorg. Chem.* **2012**, 34, 5701-5713.
4) Diebold, C.; Weekes, D. M.; Navarrete, M. T.; Mobian, P.; Kyritsakas, N.; Henry, M. *Eur. J. Org. Chem.* **2010**, 6949-6956.
5) Mobian, P.; Baradel, N.; Kyritsakas, N.; Khalil, G.; Henry, M. *Chem. Eur. J.* **2015**, 21, 2435–2441.
6) Mobian, P.; Pham, D.-J.; Chaumont, A.; Barloy, L.; Khalil, G.; Kyritsakas, N. *J. Am. Chem. Soc.*, **2024,** 146, 14067-14078.
7) Day, E.; Kauffmann, B.; Scarpi-Luttenauer, M.; Chaumont, A.; Henry, M.; Mobian, P. *Chem. Eur. J.*, **2022**, 28, e202200047.