Università degli Studi di Padova

DiSC

Martedì **9 Settembre 2025** alle ore **15:00**
presso l'aula H del Dipartimento di Scienze Chimiche

la **prof.ssa Valérie Marvaud**

Institut Parisien de Chimie Moléculaire
Sorbonne Université, Paris (F)

terrà il seminario dal titolo:

Advances in Photo-Switchable Nanomagnets and Magnetic Dendrimers

La presenza della S. V. sarà molto gradita

Gli Organizzatori
Prof.ssa Silvia Carlotto
Prof. Antonio Barbon

Il Direttore del Dipartimento
Prof. Stefano Mammi

Abstract

High spin molecules and photomagnetic compounds attract more and more attention due to their potential interest in memory devices or optical switches. In this context, octacyanomolybdate or octacyanotungstate precursors might be viewed as interesting building blocks not only for the drastic increase of their magnetization induced by visible light irradiation, but also for the design and the synthesis of multicomponent architectures.

In this presentation, we focus on three themes that emerge from our research:
- High spin molecules based on polycyanometallates precursors and magnetic dendrimers viewed as interesting nanomagnets. The importance of anisotropy for slow relaxation magnetization will be discuss as well in the frame of (SMM) Single Molecule Magnet design.
- A family of photo switchable compounds (such as MoZn2, WZn2, MoCu6 of Mo6Cu14) fully characterized by several techniques (XRD, SQUID, EPR, EXAFS, XMCD, …) in order to well understand the photo-magnetic processes that might vary from one compound to the others (spin transition, electron transfer, bond breaking).
- Most of the compounds might be used as starting material for the design and the synthesis of polymetallic supramolecular architectures in order to combine multi-properties. Thus, according to a smart supramolecular approach, the versatility of the synthetic approach was demonstrated by getting several families of hetero-tetrametallic complexes, combining up to four different metallic ions. Such compounds have the potential of featuring luminescent, magnetic and photo-switching properties.

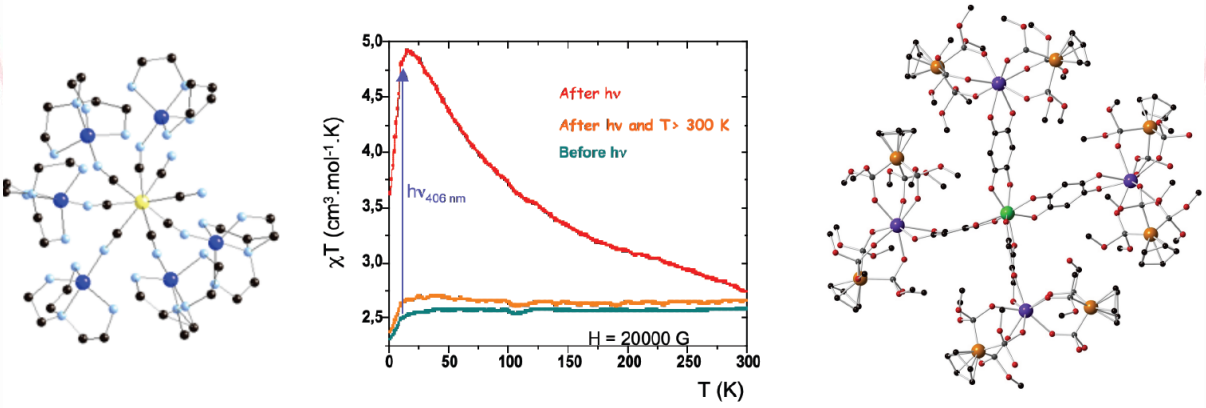

Fig. 1 : MoCu6 (X-Ray structure and photo-magnetic properties) and ZrTb4Co8 (X-ray structure)

Références

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- V. Marvaud et al. *Angew. Chem.* 43, 5468, **2004**
- C. Mathonière, V. Marvaud *et al.*, *Angew. Chem. Int. Ed.*, **2020**, 59, 3117 –3121
- I. Suzana, J. Forté, S. Pillet, M. Malischewski, V. Marvaud, *Chem. Eur. J.* **2025**
- I. Suzana, S. Rupf, E. Rousset, A. K. F. Rahman, B. Klemke, V. Marvaud, M. Malischewski, *manuscript in preparation.*