Ligand-Driven Light switching of Single Molecule Magnets

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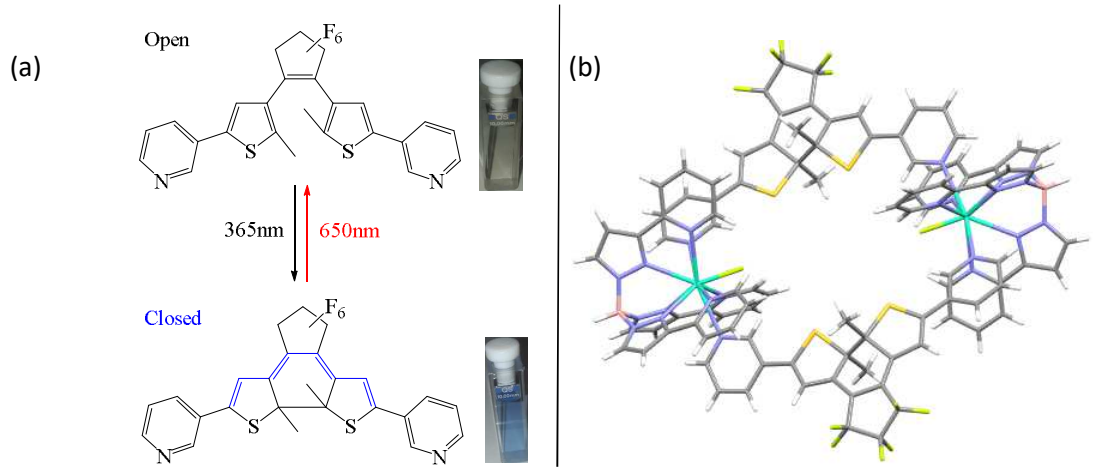
Single Molecule Magnets (SMM) are molecules that behave as tiny magnets at low temperature. SMM offers unique features that may allow information to be stored with much higher densities, and to be processed at unprecedented speeds. [1] In order to use SMM in information storage devices, it would be a great advantage to control the magnetic properties by applying an external stimuli. Light is fascinating in this purpose due to its easy and contactless application. [2]

The goal of our project is to create an efficient strategy to switch reversibly the molecular magnetic behavior with light, relying on the photochromic abilities of a ligand, and on the recognized influence of the coordination environment on the SMM property.



(a) Photochromic transformation of a DTE molecule **(b)** Cationic cage assembled with DTE and Dy-F units

In our target complexes, we aim to control the slow relaxation behavior of dysprosium (III) complexes through the photoisomerization of a dithienylethene (DTE) molecule that is known to show good photo-reversibility and excellent thermal stability for both opened and closed forms. [3] In this presentation, I will introduce a strategy to photo-switch reversibly the SMM behavior based on a supramolecular approach. [4]

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